XIAMEN BOFA VALVES CO.,LTD

YOUR RELIABLE PARTNER

No. 1-3 Fanghu West Second Road, Huli District, Xiamen, China.

Tel: 086 592 5717696

Fax: 086 592 5717696

E-mail: sales@bofavalve.com

Website: www.bofavalve.com

Contents

GATE VALVE

STEEL GATE VALVE

Standards

Design and Manufacture: Cast steel gate valve to API 600 (ISO 10434) or API 6D; Cast stainless steel gate valve to API 603 or API 600; Forged steel gate valve to API 602.
Inspection and Test: API 598, API 600 or API 6D.
End flange dimension: ASME B16.5 (for NPS≤24) ; ASME B16.47 series B、API 605 or ASME B16.47 series A、MSS SP-44 (for NPS>24) .
BW end dimension:ASME B16.25.
Socket-weld dimension:ASME B16.11.
Face to face and end to end:ASME B16.10.
Pressure-temperature ratings:ASME B16.34.

Design of Disc

Gate Valves with NPS ≥ 2 are of wedge flexible gate;
Gate valves with NPS < 2 are of wedge solid gate.

Body and Bonnet Connection

The body and bonnet of Class150 ~ Class900 gate valves are usually connected with studs and nuts. And the body and bonnet of Class1500 ~ Class2500 gate valves are usually of pressure seal design.

Gasket of Cover Flange

Carbon steel or stainless steel + flexible graphite combined gasket is used for Class150 gate valve; Stainless steel + flexible graphite wounded gasket is used for Class 300 gate valve; Stainless steel + flexible graphite wounded gasket is used for Class600 gate valve,and ring joint gasket is also optional for Class600 gate valve; Ring Joint gasket is used for Class 900 gate valve;Pressurized seal design is used for Class1500 ~ Class500 gate valve.

Actuation

Hand wheel or gear box is usually used for gate valve actuation. Chain wheel and electric actuator can be also used for gate valve actuation if being requested by the customers.

Belleville Spring Loaded Packing Impacting System

If being requested by the customer, the Belleville spring loaded packing impacting system can be adopted for enhancing the durability and reliability of the packing seal.

Packing Seal

Molded flexible graphite is used for packing material. PTFE or combined packing material can be also used if being requested by the customer. The internal surface of the stuffing box, of which area is contacted with the packing, is of excellent finish (Ra3.2μm). The stem surface, contacting with the packing, should be rolled and pressed after being precisely machined, so as to reach to the high finish and compactness (Ra0.8μm) and ensure the reliable tightness of the stem area.

Back Seating Design

All our gate valves have the back seating design. In most cases, the carbon steel gate valve is fitted with a renewable back seat. For stainless steel gate valve, the back seat is machined directly in the bonnet or is machined after welding. When the gate valve is at fully open position, the sealing of the back seat can be very reliable. However, as per the requirement of API 600, it is not advisable to add or change packing by the mean of back seating when the valve is Pressure containing.

Seat

For carbon steel gate valve, the seat is usually forged steel. The sealing surface of the seat is spray welded with hard alloy specified by the customer. Renewable threaded seat is used for NPS ≤ 10 gate valves, and welded on seat can be also optional if being requested by the customer. Welded on seat is used for NPS ≤10 carbon steel gate valves. For Stainless steel gate valve, integral seat is usually adopted, or to weld hard alloy directly integrally. Threaded or welded on seat is also optional for stainless steel gate valve if being requested by the customer.

Stem Design

The stem is of integral forged design. The minimum diameter of the stem shall per the standard requirement. The connection of the stem and disc is T type. The strength of the connecting area is bigger than that of the T threaded part of the stem. The strength test of that area conforms to API 591.

Stem Nut

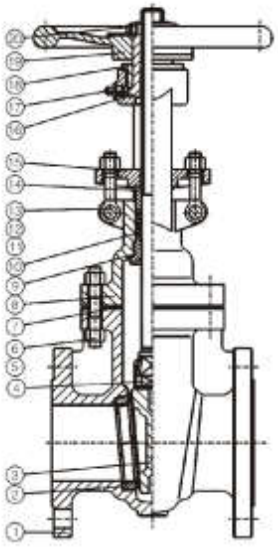
Usually, the stem nut is made of copper alloy, it is also can be made of ASTM A439 D2 if being requested by the customer. For large sized gate valves (NPS 10 for Class 150, NPS 8 for Class 300, NPS 6 for Class 600, NPS 5 for Class 900), rolling bearing is fitted at the two sides of the stem nut in order to minimize the open and close torque of the gate valve.

Special Gate Valve

Besides the common gate valves, YuanGao also makes cryogenic gate valve, Jacketed Gate Valve, Bellow Sealed Gate Valve, Extension Stem Gate Valve for underground application, Slat Gate Valve, etc.

CAST STEEL GATE VALVE

Parts and material list

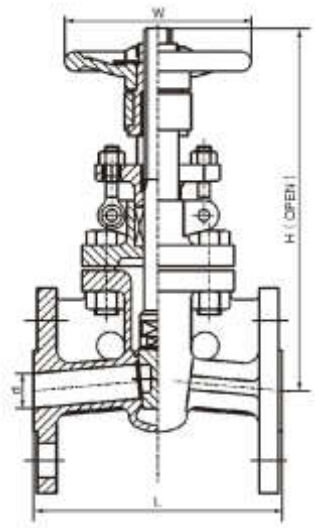


Parts No.	Parts name	Material				
		WCB/Trim 1	WCB/Trim 5	WCB/Trim 8	CF8/304	CF8M/316
1	Body	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
2	Seat ring	A105+13Cr	A105+STL	A105+STL	ASTM A351 CF8	ASTM A351 CF8M
3	Gate	ASTM A216 WCB+13Cr	ASTM A216 WCB+STL	ASTM A216 WCB+13Cr	ASTM A351 CF8	ASTM A351 CF8M
4	Stem	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F304	ASTM A182 F316
5	Bonnet bolt	ASTM A193 B7	ASTM A193 B7	ASTM A193 B7	ASTM A193 B8	ASTM A193 B8M
6	Bonnet nut	ASTM A194 2H	ASTM A194 2H	ASTM A194 2H	ASTM A194 8	ASTM A194 8M
7	Gasket	Soft Iron + Graphite or 304 +Graphite			304 + Graphite	316 + Graphite
8	Bonnet	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
9	Backseat bushing	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A351 CF8	ASTM A351 CF8M
10	Packing	Graphite	Graphite	Graphite	Graphite	Graphite
11	Gland eyebolt	ASTM A193 B7	ASTM A193 B7	ASTM A193 B7	ASTM A193 B8	ASTM A193 B8M
12	Eyebolt nut	ASTM A194 2H	ASTM A194 2H	ASTM A194 2H	ASTM A194 8	ASTM A194 8M
13	Eyebolt pin	ASTM AISI 1045	ASTM AISI 1045	ASTM AISI 1045	304ss	316ss
14	Gland	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F304	ASTM A182 F316
15	Gland flange	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
16	Stem nut	Copper alloy	Copper alloy	Copper alloy	Copper alloy	Copper alloy
17	Nipple	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
18	Yoke sleeve nut	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
19	Hand wheel	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
20	Hand wheel nut	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel

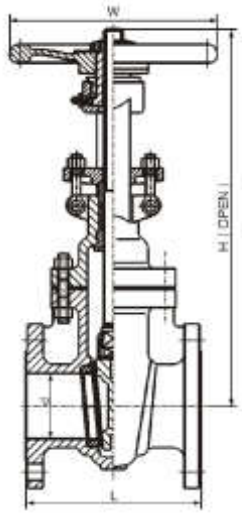
Note: The chart above only lists out some common composition of steel gate valve parts. We may provide other different parts material composition acording to the customer's request or the actual valve working condition.

CAST STEEL GATE VALVE

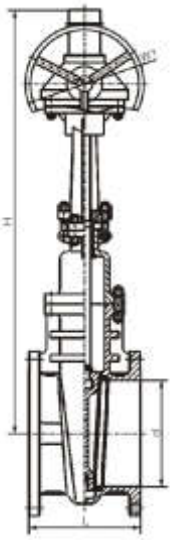
Class 150 & JIS 10K Cast Steel Gate Valve



NPS≤1 1/4



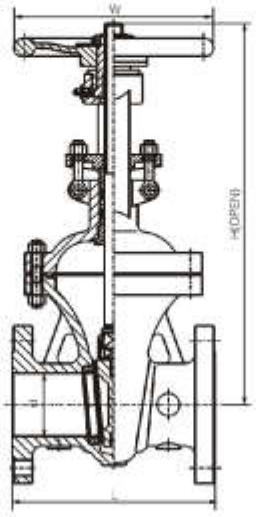
NPS≥1 1/2

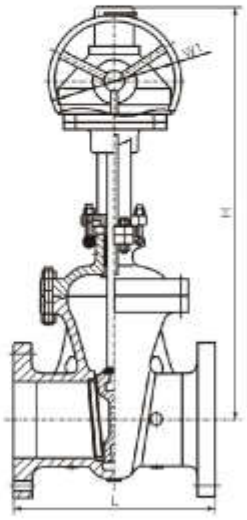


Class	Size		Dimensions (mm)								Weight (Kg)	
	NPS	DN	L			d	H	H1	W	W1	Hand wheel	Gear box
			RF	RTJ	BW							
Class 150 JIS 10K	1/2	15	108	119	108	13	195	–	120	–	4	–
	1 1/4	20	117	130	117	19	210	–	120	–	5	–
	1	25	127	140	127	25	240	–	140	–	7	–
	1 1/2	32	140	153	140	32	300	–	180	–	10	–
	3/4	40	165	178	165	38	395	–	200	–	14	–
	2	50	178	191	216	51	400	–	200	–	19	–
	2 1/2	65	190	203	241	64	435	–	200	–	25	–
	3	80	203	216	283	76	515	–	250	–	33	–
	4	100	229	241	305	102	595	–	280	–	49	–
	5	125	254	267	381	127	725	–	280	–	62	–
	6	150	267	279	403	152	780	820	300	310	77	104
	8	200	292	305	419	203	975	1020	350	310	123	150
	10	250	330	343	457	254	1150	1200	400	310	188	215
	12	300	356	368	502	305	1380	1430	450	310	288	315
	14	350	381	394	572	337	1545	1580	500	310	385	435
	16	400	406	419	610	387	1733	1780	500	460	500	552
	18	450	432	445	660	438	1915	1990	500	460	601	653
	20	500	457	470	711	489	2122	2220	600	460	764	816
	24	600	508	521	813	591	2520	2600	600	460	1007	1185
	26	650	559	–	864	633	–	2800	–	600	–	1550
	28	700	610	–	914	684	–	3050	–	600	–	1880
	30	750	610	–	914	735	–	3130	–	600	–	2300
	32	800	711	–	965	779	–	3280	–	600	–	2550
	34	850	762	–	1016	830	–	3500	–	600	–	2950
	36	900	711	–	1016	874	–	3720	–	600	–	3390

CAST STEEL GATE VALVE

Class 300 & JIS 20K Cast Steel Gate Valve

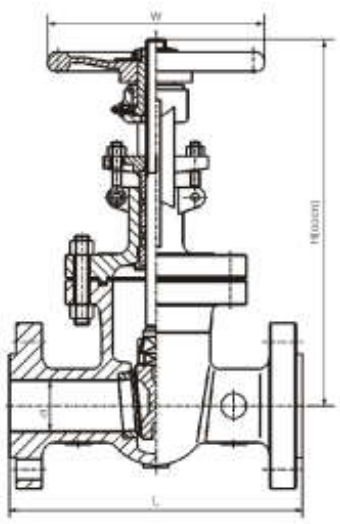


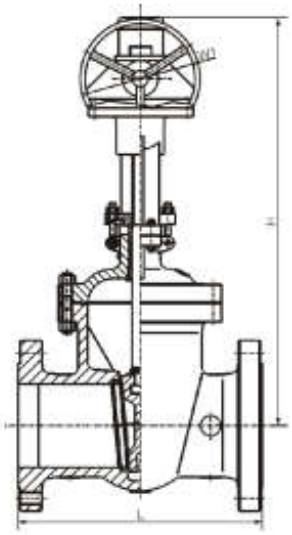


Class	Size		Dimensions (mm)								Weight(Kg)	
	NPS	DN	L			d	H	H1	W	W1	Hand wheel	Gear box
			RF	RTJ	BW							
Class 300 JIS 20K	1 1/2	40	190	203	190	38	400	–	200	–	21	–
	2	50	216	232	216	51	420	–	200	–	25	–
	2 1/2	65	241	257	241	64	446	–	200	–	30	–
	3	80	283	298	283	76	537	–	250	–	48	–
	4	100	305	321	305	102	619	650	280	310	73	100
	5	125	381	397	381	127	722	750	300	310	99	126
	6	150	403	419	403	152	806	835	350	310	130	186
	8	200	419	435	419	203	1000	1030	400	310	208	235
	10	250	457	473	457	254	1240	1280	450	310	334	386
	12	300	502	518	502	305	1425	1460	500	310	450	502
	14	350	762	778	762	337	1585	1620	600	460	704	756
	16	400	838	854	838	387	1790	1830	500	460	923	965
	18	450	914	930	914	438	1960	2000	650	460	1131	1224
	20	500	991	1010	991	489	2158	2220	750	460	1345	1400
	24	600	1143	1165	1143	584	2576	2620	900	600	2122	2385
	26	650	1245	1270	1245	633	–	2850	–	600	–	3000
	28	700	1346	1372	1346	684	–	3080	–	600	–	3300
	30	750	1397	1422	1397	735	–	3180	–	600	–	3550
	32	800	1524	1553	1524	779	–	3300	–	600	–	4400
	34	850	1626	1654	1626	830	–	3550	–	600	–	5200
	36	900	1727	1756	1727	874	–	3760	–	600	–	6050

CAST STEEL GATE VALVE

Class 600 & Class 900 Cast Steel Gate Valve

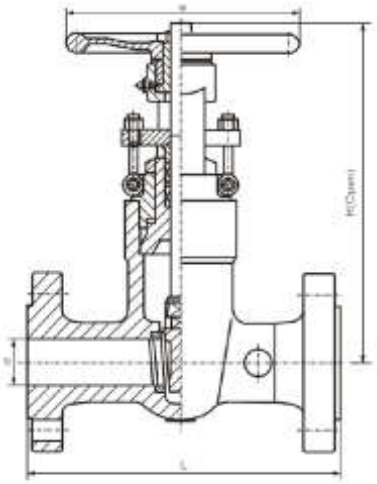


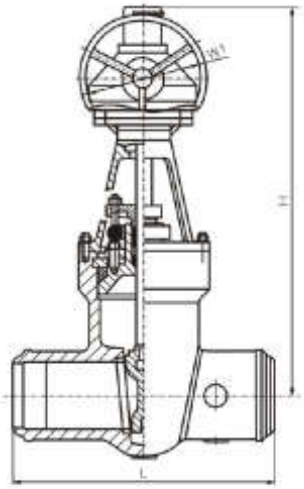


Class	Size		Dimensions (mm)								Weight(Kg)	
	NPS	DN	L			d	H	H1	W	W1	Hand wheel	Gear box
			RF	RTJ	BW							
Class 600	2	50	292	295	292	51	444	–	200	–	32	–
	2 1/2	65	330	333	330	64	500	–	250	–	52	–
	3	80	356	359	356	76	558	585	280	310	60	87
	4	100	432	435	432	102	665	695	300	310	107	134
	5	125	508	511	508	127	760	790	350	310	175	227
	6	150	559	562	559	152	868	900	450	310	216	268
	8	200	660	664	660	200	1073	1110	500	310	399	451
	10	250	787	791	787	248	1263	1300	650	460	605	657
	12	300	838	841	838	298	1600	1650	700	460	851	893
	14	350	889	892	889	327	1705	1750	900	460	1177	1232
	16	400	991	994	991	375	1835	1900	900	460	1513	1568
	18	450	1092	1095	1092	419	–	2020	–	600	–	1980
	20	500	1194	1200	1194	464	–	2172	–	600	–	2460
	24	600	1397	1407	1397	559	–	2650	–	600	–	3650
Class 900	2	50	368	371	368	47	500	–	280	–	70	–
	2 1/2	65	419	422	419	57	550	–	280	–	110	–
	3	80	381	384	381	73	610	660	300	310	140	167
	4	100	457	460	457	98	702	750	350	310	200	227
	5	125	559	562	559	121	850	900	400	310	258	285
	6	150	610	613	610	146	980	1060	500	460	358	410
	8	200	737	740	737	190	1100	1140	650	460	550	600
	10	250	838	841	838	234	1320	1370	700	460	1000	1100
	12	300	965	968	965	282	1500	1560	900	460	1215	1310
	14	350	1029	1038	1029	311	1900	1950	900	600	1600	1700
	16	400	1130	1140	1130	354	2050	2100	900	600	2150	2330

CAST STEEL GATE VALVE

Class 1500 & Class 2500 Cast Steel Gate Valve





Class	Size		Dimensions (mm)								Weight(Kg)	
	NPS	DN	L			d	H	H1	W	W1	Hand wheel	Gear box
			RF	RTJ	BW							
Class 1500	2	50	368	371	368	47	510	–	280	–	70	–
	2 1/2	65	419	422	419	57	560	–	300	–	110	–
	3	80	470	473	470	70	620	670	350	310	175	202
	4	100	546	549	546	92	728	770	400	310	270	300
	5	125	673	676	673	111	870	920	450	310	378	405
	6	150	705	711	705	136	1000	1070	500	460	520	575
	8	200	832	841	832	174	1130	1180	750	460	820	915
	10	250	991	1000	991	222	1360	1410	900	600	1560	1750
	12	300	1130	1146	1130	263	–	1620	–	600	–	2120
	14	350	1257	1276	1257	289	–	2020	–	600	–	2600
	16	400	1384	1407	1384	330	–	2180	–	600	–	3450
Class 2500	2	50	451	454	451	35	530	580	280	310	100	130
	2 1/2	65	508	514	508	47	580	630	300	310	150	180
	3	80	578	584	578	57	650	700	350	310	245	275
	4	100	673	683	673	73	750	800	400	310	390	420
	5	125	794	807	794	92	900	960	500	460	550	580
	6	150	914	927	914	111	1040	1100	600	460	780	835
	8	200	1022	1038	1022	146	1150	1200	750	460	1260	1355
	10	250	1270	1292	1270	184	1400	1460	900	600	2380	2565
	12	300	1422	1445	1422	219	–	1660	–	600	–	3250

GLOBE VALVE

STEEL GLOBE VALVE

Standards

Design and Manufacture: Cast steel globe valve to BS 1873 and ASME B16.34; Forged steel globe valve to API 602.
Inspection and Test: API 598.
End flange dimension: ASME B16.5.
BW end dimension: ASME B16.25.
Socket-weld dimension: ASME B16.11.
Face to face and end to end: ASME B16.10.
Pressure-temperature ratings: ASME B16.34.

The features of globe valve

Bolted Bonnet; Outside Screw and Yoke; Rising stems; Metallic seating surfaces.

Body and Bonnet Connection

The body and bonnet of Class150 ~ Class900 check valves are usually with studs and nuts. And the body and bonnet of Class1500 ~ Class2500 check valves are usually of pressure seal design.

Gasket of Cover Flange

Stainless steel + flexible graphite wounded gasket is used for Class150 and Class300 globe valve. Stainless steel + flexible graphite wounded gasket is used for Class 600, and ring joint gasket is also optional for Class600. Ring joint gasket is used for Class900 globe valve. Pressurized seal design is used for Class 1500 ~ Class2500 globe valve.

Actuation

Hand wheel, impact hand wheel & gear box is usually used for globe valve actuation. Chain wheel and electric actuator can be also used for globe valve actuation if being requested by the customers.

Packing Seal

Molded flexible graphite is used for packing material. PTFE or combined packing material can be also used if being requested by the customer. The internal surface of the stuffing box, of which area is contacted with the packing, is of excellent finish (Ra 3.2 μ m). The stem surface, contacting with the packing, should be rolled and pressed after being precisely machined, so as to reach to the high finish and compactness (Ra 0.8 μ m) and ensure the reliable tightness of the stem area.

Belleville Spring Loaded Packing Impacting System

If being requested by the customer, the Belleville spring loaded packing impacting can be adopted for enhancing the durability and reliability of the packing seal.

Back Seating Design

All our globe valves have the back seat design. In most cases, the carbon steel globe valve is fitted with a renewable back seat. For stainless steel globe valve, the back seat is machined directly in the bonnet or is machined after welding. When the globe valve is at fully open position, the sealing of the back seat can be very reliable. However, as per the requirement of API, it is not advisable to add or change packing by the mean of back seating whenthe valve is pressure containing.

Seat

For carbon steel globe valve, the seat is usually forged steel. The sealing surface of the seat is spray welded with hard alloy specified by the customer. Renewable threaded seat is used for NPS≤10 globe valve, and welded on seat can be also optional if being requested by the customer. Welded on seat is used for NPS ≥ 12 carbon steel globe valves. For stainless steel globe valve, integral seat is usually adopted, or to weld hard alloy directly integrally. Threaded or welded on seat is also optional for stainless steel globe valve if being requested by the customer.

Stem Design

The stem is of integral forged design. The minimum diameter of the stem shall per the standard requirement.

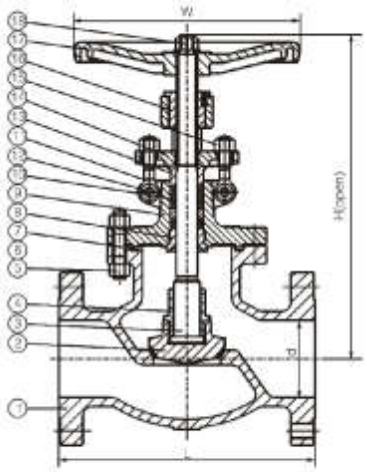
Stem Nut

Usually, the stem nut is copper alloy. It is also can be made of ASTM A439 D2 if being requested by the customer. For large sized globe valve, rolling bearing is fitted at the two sides of stem nut in order to minimize the open and close torque of the globe valve.

Special Globe Valve

Besides the common globe valves, we also makes cryogenic globe valve, bellow sealed globe valve, Jacketed globe valve, etc.

CAST STEEL GLOBE VALVE



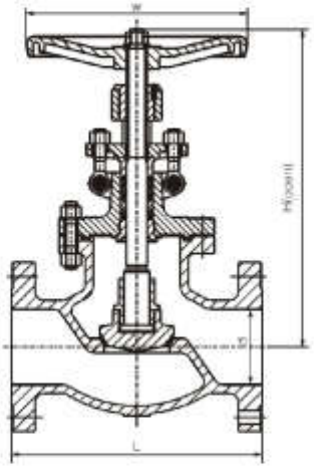
Parts and material list

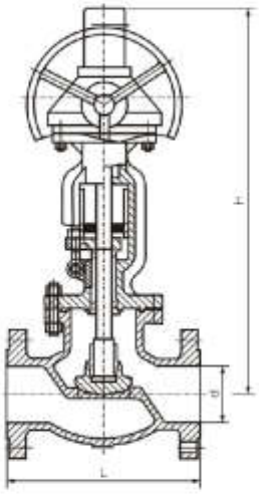
Parts No.	Parts name	Material				
		WCB/Trim 1	WCB/Trim 5	WCB/Trim 8	CF8/304	CF8M/316
1	Body	ASTM A216 WCB+13Cr	ASTM A216 WCB+STL	ASTM A216 WCB+STL	ASTM A351 CF8	ASTM A351 CF8M
2	Disc	ASTM A216 WCB+13Cr	ASTM A216 WCB+STL	ASTM A216 WCB+13Cr	ASTM A351 CF8	ASTM A351 CF8M
3	Stem	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F304	ASTM A182 F316
4	Disc nut	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
5	Bonnet nut	ASTM A194 2H	ASTM A194 2H	ASTM A194 2H	ASTM A194 8	ASTM A194 8M
6	Bonnet bolt	ASTM A193 B7	ASTM A193 B7	ASTM A193 B7	ASTM A193 B8	ASTM A193 B8M
7	Gasket	304+Graphite	304 +Graphite	304+Graphite	304 + Graphite	316 + Graphite
8	Backseat bushing	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A351 CF8	ASTM A351 CF8M
9	Bonnet	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
10	Packing	Graphite	Graphite	Graphite	Graphite	Graphite
11	Eyebolt pin	ASTM AISI 1045	ASTM AISI 1045	ASTM AISI 1045	304ss	316ss
12	Gland eyebolt	ASTM A193 B7	ASTM A193 B7	ASTM A193 B7	ASTM A193 B8	ASTM A193 B8M
13	Gland	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F304	ASTM A182 F316
14	Gland flange	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
15	Eyebolt nut	ASTM A194 2H	ASTM A194 2H	ASTM A194 2H	ASTM A194 8	ASTM A194 8M
16	Stem nut	Copper alloy	Copper alloy	Copper alloy	Copper alloy	Copper alloy
17	Hand wheel	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
18	Hand wheel nut	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel

Note: The chart above only lists out some common composition of steel globe valve parts. We may provide other different parts material composition according to the customer's request or the actual valve working condition.

CAST STEEL GLOBE VALVE

Class 150 & JIS 10K Cast Steel Globe Valve

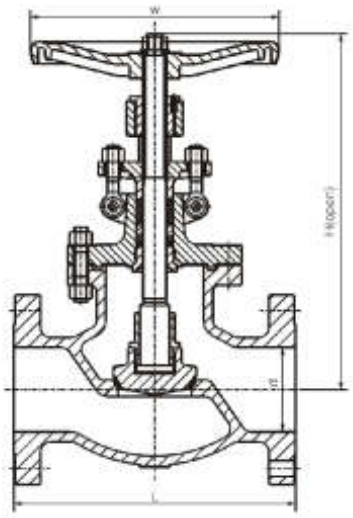


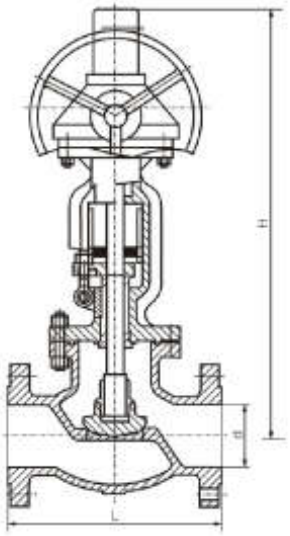


Class	Size		Dimensions (mm)								Weight (Kg)	
	NPS	DN	L			d	H	H_1	W	W_1		
			RF	RTJ	BW						H.W	G.O
Class150	1/2	15	108	119	108	13	182	–	100	–	3	–
	3/4	20	117	130	117	19	193	–	100	–	4	–
	1	25	127	140	127	25	217	–	100	–	5	–
	1 1/4	32	140	152	140	32	235	–	135	–	8	–
	1 1/2	40	165	178	165	38	258	–	135	–	9	–
	2	50	203	216	203	51	330	–	200	–	19	–
	2 1/2	65	216	229	216	64	360	–	250	–	27	–
	3	80	241	254	241	76	390	–	280	–	36	–
	4	100	292	305	292	102	445	–	300	–	53	–
	5	125	356	369	356	127	480	–	350	–	75	–
	6	150	406	419	406	152	520	556	350	310	94	126
	8	200	495	508	495	203	600	658	400	310	148	180
	10	250	622	635	622	254	773	805	450	460	242	291
	12	300	698	711	698	305	880	955	500	460	438	480

CAST STEEL GLOBE VALVE

Class 300 & JIS 20K Cast Steel Globe Valve

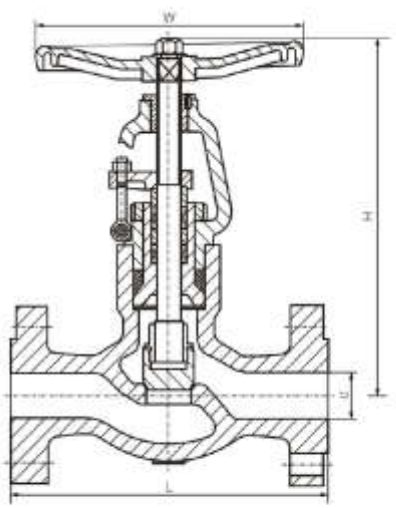


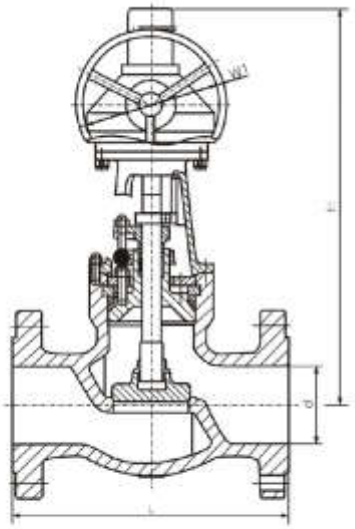


Class	Size		Dimensions (mm)								Weight (Kg)	
	NPS	DN	L			d	H	H1	W	W1	H.W	G.O
			RF	RTJ	BW							
Class300	1/2	15	152	164	152	13	185	–	100	–	5	–
	3/4	20	178	191	178	19	195	–	100	–	7	–
	1	25	203	216	203	25	220	–	135	–	10	–
	1 1/4	32	216	229	216	32	240	–	135	–	14	–
	1 1/2	40	229	241	229	38	260	–	160	–	19	–
	2	50	267	283	267	51	385	–	200	–	25	–
	2 1/2	65	292	308	292	64	420	–	200	–	42	–
	3	80	318	333	318	76	440	–	280	–	46	–
	4	100	356	371	356	102	515	–	350	–	74	–
	5	125	400	416	400	127	580	–	350	–	111	–
	6	150	444	460	444	152	660	690	400	310	165	195
	8	200	559	575	559	203	900	950	550	460	275	327
	10	250	622	638	622	254	950	990	600	460	400	452
	12	300	711	727	711	305	1030	1080	700	460	624	725

CAST STEEL GLOBE VALVE

Class 600 & Class 900 Cast Steel Globe Valve





Class	Size		Dimensions (mm)								Weight (Kg)	
	NPS	DN	L			d	H	H_1	W	W_1	H.W	G.O
			RF	RTJ	BW							
Class 600	2	50	292	295	292	51	360	–	250	–	32	–
	2 1/2	65	330	333	330	64	410	–	280	–	42	–
	3	80	356	359	356	76	465	–	300	–	63	–
	4	100	432	435	432	102	545	575	400	310	107	138
	5	125	508	511	508	127	625	660	500	310	185	215
	6	150	559	562	559	152	785	820	550	460	290	342
	8	200	660	664	660	200	930	960	650	460	540	645
Class 900	2	50	368	371	368	47	480	–	350	–	55	–
	2 1/2	65	419	422	419	57	520	–	350	–	68	–
	3	80	381	384	381	73	564	630	400	310	95	128
	4	100	457	460	457	98	685	720	450	310	160	210
	5	125	559	562	559	121	780	640	550	460	270	325
	6	150	610	613	610	146	950	1015	650	460	410	480

BALL VALVE

FLOATING BALL VALVE

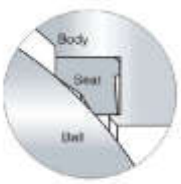
Application

Floating ball valves are suitable for various kinds of pipelines of Class 150 to Class 1500, PN16 to Pn100, and JIS 10K to JIS 20K to turn on or off the pipeline medium, of which the operation types include manual, worm gear and pneumatic or electric actuators.

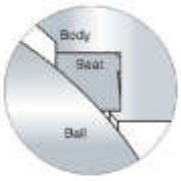
Construction and features of floating ball valve

Reliable seat seal

The structure design of elastic sealing ring has been adopted for floating ball valves. This seat design features a bigger sealing pressure ratio between the ring surface and the ball when medium pressure gets lower, where the contacting area is smaller. Thus, the reliable seal is ensured. When the medium pressure gets higher, the contacting area between seat ring and ball becomes bigger as the sealing ring transforms elastically to undertake the bigger force pushed by the medium without any damage.



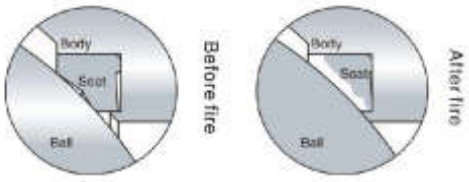
At lower medium pressure



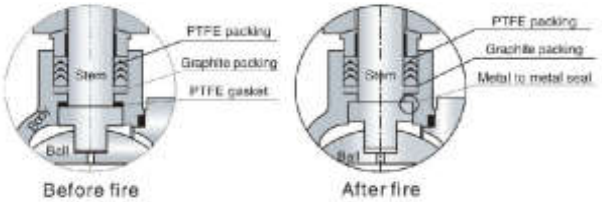
At higher medium pressure

Fire safe design

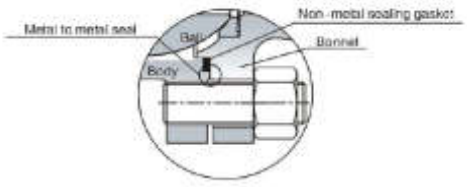
With the valve heated in a fire application, the non-metal material parts such as seat sealing ring of PTFE, stem back seat gasket, gland packing, and the sealing gasket between body and bonnet might disintegrate or be damaged due to high temperature. Bofa valves specially designed structure of auxiliary metal to metal seal is provided to effectively prevent both internal and external leakage of the valve. As required by customers, bofa valves floating ball valves with design can meet the requirement of API 607, API 6FA,BS 6755 and JB/T 6899.



Fire safe design of seat



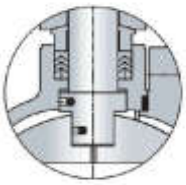
Fire safe design of stem

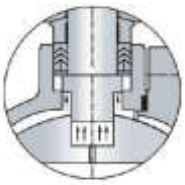


Fire safe design of valve body and bonnet flanges

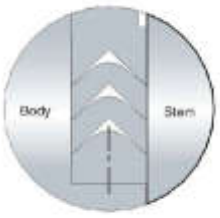
Reliable stem seal

The blow-out proof design has been adopted for the stem to ensure that even if the pressure in the body cavity is risen accidently and the packing flange becomes invalid, the stem may not be blown out by medium. The stem features the design with a backseat, being assembled from underneath. The sealing force against the backseat gets higher as the medium pressure becomes higher. So the reliable seal of the stem can be assured under variable medium pressure.

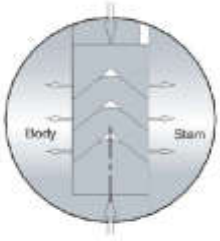

Stem assembled from underneath may not be blown out by medium


Stem assembled downward may be blown out

V type packing structure has been employed to effectively transform the pushing force of the gland flange and the medium pressure into the sealing force against the stem.



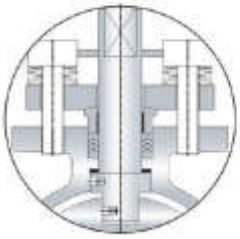
Packing before pressed



Packing after pressed

FLOATING BALL VALVE

Based on customers' requirement, a packing tightening design may be employed to obtain more reliable stem packing seal, which is loaded by bevelling spring.



The traditional packing flange design has been improved to be of two piece structure, i.e., being as a gland flange and gland, the latter contacts the gland flange with spherical surface. Thus, the gland remains vertical always, and is lined internally with a PTFE bush to prevent the galling against and friction between the stem, which can also reduce the operation torque of the valve.

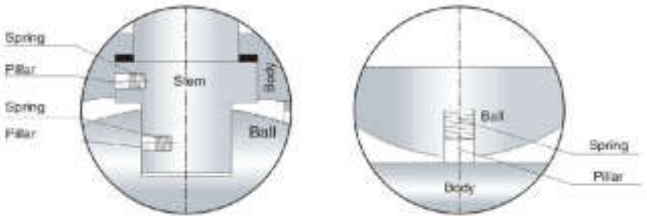
Stem galling prevented in application

Mounting pad provided

Bofa valves company has provided for floating ball valve with a mounting pad , through which it is easy to fix the actuators, such as worm gear, pneumatic and electric actuators.

Anti-static feature

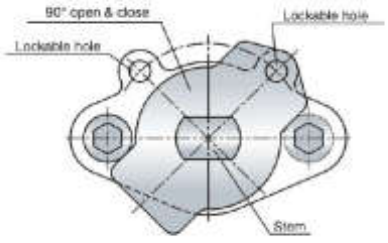
The traditional packing flange design has been improved to be of two piece structure, i.e., being as a packing flange plate and a follower, the latter contacts the flange plate with spherical surface. Thus, the follower remains vertical always, and is lined internally with a PTFE bush to prevent the galling against and friction between the stem, which can also reduce the operation torque of the valve.



Anti-Static design for ball valve ≥32mm Anti-Static design for ball valve ≤25mm

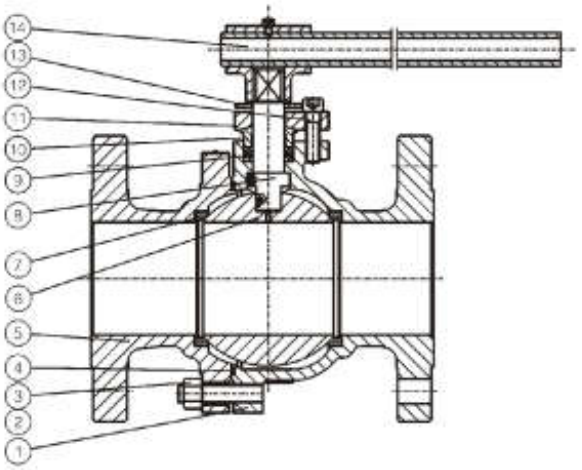
Wrong operation prevention

To prevent the ball valve from wrong operation, the key lock with 90° of open and close positioning pad has been provided, Which can be lock able as required. At the stem head, where the lever fixes, a flat is designed so that the valve opens with the lever in parallel to piping, and with the lever right-angled to the piping, the valve is closed. So, it is ensured that the valve indicator of open and close can never make mistake.



FLOATING BALL VALVE

Typical drawing of floating ball valve and parts composition

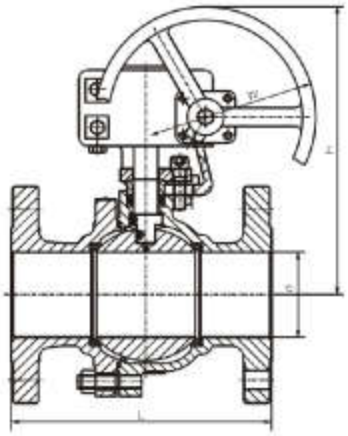


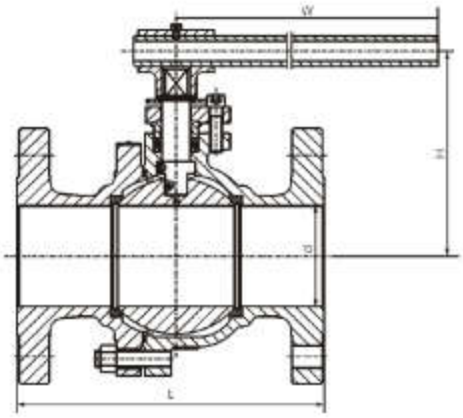
Parts and material list

Parts No.	Parts name	Material				
		WCB/13Cr	WCB/304	WCB/316	CF8	CF8M
1	Body	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
2	Body nut	ASTM A194 2H	ASTM A194 2H	ASTM A194 2H	ASTM A194 8	ASTM A194 8M
3	Body bolting	ASTM A193 B7	ASTM A193 B7	ASTM A193 B7	ASTM A193 B8	ASTM A193 B8M
4	Gasket	PTFE	PTFE	PTFE	PTFE	PTFE
5	Cap	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
6	Ball	ASTM A182 F6a	ASTM A182 F304	ASTM A182 F316	ASTM A182 F304	ASTM A182 F316
7	Seat	Reinforced PTFE	Reinforced PTFE	Reinforced PTFE	Reinforced PTFE	Reinforced PTFE
8	Stem	ASTM A182 F6a	ASTM A182 F304	ASTM A182 F316	ASTM A182 F304	ASTM A182 F316
9	Packing	PTFE	PTFE	PTFE	PTFE	PTFE
10	Gland	ASTM A182 F6a	ASTM A182 F304	ASTM A182 F316	ASTM A182 F304	ASTM A182 F316
11	Gland flange	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
12	Gland bolt	ASTM A193 B7	ASTM A193 B7	ASTM A193 B7	ASTM A193 B8	ASTM A193 B8M
13	Stop collar	Carbon steel	Carbon steel	Carbon steel	Stainless steel	Stainless steel
14	Lever	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel

Note: The chart above only lists out some common composition of steel ball valve parts. We may provide other different parts material composition according to the customer's request or the actual valve working condition.

FLOATING BALL VALVE



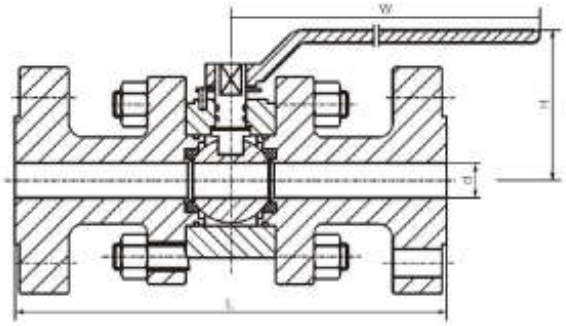


Pressure stage	Size		Dimensions (mm)							Weight(kg)	
	DN	NPS	L		d	W		H			
			RF	RTJ		Hand wheel	Gear box	Hand wheel	Gear box	Hand wheel	Gear box
Class150	15	1/2	108	119	13	140	–	85	–	3	–
	20	3/4	117	130	19	140	–	90	–	4	–
	25	1	127	140	25	150	–	99	–	5	–
	32	1 1/4	140	153	32	180	–	105	–	7	–
	40	1 1/2	165	178	38	200	–	126	–	8	–
	50	2	178	191	51	250	–	140	–	12	–
	65	2 1/2	190	203	64	300	–	165	–	18	–
	80	3	203	216	76	350	–	178	–	24	–
	100	4	229	242	102	500	305	230	380	38	53
	125	5	356	369	127	800	305	280	405	60	79
	150	6	394	407	152	800	305	310	460	82	102
	200	8	457	470	203	1000	305	350	550	145	185
	250	10	533	546	254	–	400	–	706	–	280
Class300	15	1/2	140	151	13	140	140	85	85	3	–
	20	3/4	152	165	19	140	140	90	90	5	–
	25	1	165	178	25	150	150	99	99	6	–
	32	1 1/4	178	191	32	180	180	105	105	8	–
	40	1 1/2	190	203	38	200	200	126	126	11	–
	50	2	216	232	51	250	250	142	142	16	–
	65	2 1/2	241	257	64	300	300	165	165	24	–
	80	3	283	299	76	350	350	178	178	34	52
	100	4	305	321	102	500	500	230	230	56	76
	125	5	381	397	127	800	800	280	280	86	124
	150	6	403	419	152	800	800	310	310	125	163
	200	8	502	518	203	1000	1000	350	350	222	267
Class600	15	1/2	165	164	13	140	–	79	–	5	–
	20	3/4	190	190	19	140	–	83	–	7	–
	25	1	216	216	25	200	–	114	–	9	–
	32	1 1/4	229	229	32	200	–	120	–	13	–
	40	1 1/2	241	241	38	250	–	125	–	17	–
	50	2	292	295	51	300	–	156	–	25	–
	65	2 1/2	330	333	64	350	–	172	–	42	–
	80	3	356	359	76	500	305	220	370	56	76
	100	4	432	435	102	650	305	250	400	85	123
Class900	15	1/2	216	216	13	150	–	98	–	9	–
	20	3/4	229	229	19	150	–	105	–	13	–
	25	1	254	254	25	200	–	110	–	16	–
	32	1 1/4	279	279	32	250	–	120	–	24	–
	40	1 1/2	305	305	38	250	–	125	–	31	–
	50	2	368	371	49	350	–	160	–	45	–
Class1500	15	1/2	216	216	13	182	–	98	–	10	–
	20	3/4	229	229	19	200	–	105	–	14	–
	25	1	254	254	25	250	–	110	–	17	–
	32	1 1/4	279	279	32	300	–	120	–	25	–
	40	1 1/2	305	305	38	350	–	130	–	33	–
	50	2	368	371	49	500	–	160	–	48	–

FLOATING BALL VALVE

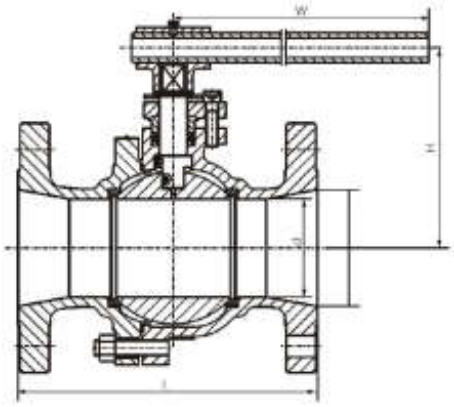
Forged steel ball valve

The floating ball valve manufactured by bofa valve company is generally employing casted steel valve body, however, as required by customers, forged steel valve body is also available, of which the main sizes such as flange connections and face to face dimensions are the same as that of the cast steel ball valve.



Ball valve with reduced bore

In addition to the full bore floating ball Valve,bofa valve is also manufacturing the floating ball valve with reduced bore to satisfy different requirement of customers, which can not only lower the cost and the pricing, but also meet customers' special requirement.



Size		Class150						Class300						Class600				
NPS	DN	L		d	d1	H	W	L		d	d1	H	W	L	d	d1	H	W
		Long	Short					Long	Short									
1/2	15	108	108	10	13	80	140	140	140	10	13	80	140	165	10	13	75	140
3/4	20	117	117	13	19	85	140	152	152	13	19	85	140	190	13	19	79	140
1	25	127	127	19	25	90	140	165	165	19	25	90	140	216	19	25	83	140
1 1/4	32	140	140	25	32	99	150	178	178	25	32	99	150	229	25	32	114	150
1 1/2	40	165	165	32	38	105	180	190	190	32	38	105	180	241	32	38	120	200
2	50	178	178	38	51	126	200	216	216	38	51	126	200	292	38	51	125	250
2 1/2	65	190	190	51	64	140	250	241	241	51	64	140	250	330	51	64	156	300
3	80	203	203	64	76	165	300	283	283	64	76	165	300	356	64	76	172	350
4	100	229	229	76	102	178	350	305	305	76	102	178	350	432	76	102	220	500
5	125	356	356	102	127	230	500	381	381	102	127	230	500	508	102	127	250	650
6	150	394	267	127	152	280	800	403	403	127	152	280	800	–	–	–	–	–
8	200	457	292	152	203	310	800	502	419	152	203	310	800	–	–	–	–	–
10	250	533	330	203	254	350	1000	568	457	203	254	350	1000	–	–	–	–	–

Note: 1. Sizes of flange connection of the ball valve with reduced bore are the same as that of full bore ball valves.
2. There are two series of face to face dimensions, i.e., the long series and the short series, for some of ball valves with reduced bore.

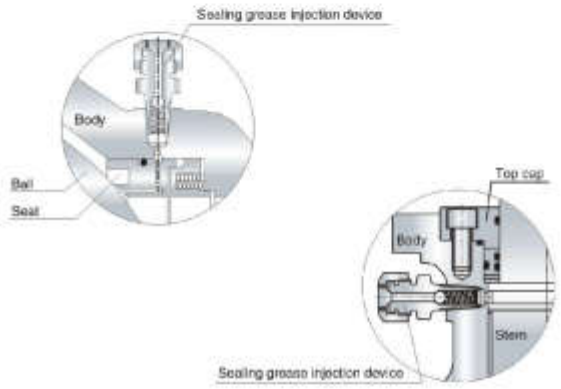
Trunnion ball valve

TRUNNION BALL VALVE

Design features of trunnion ball valve

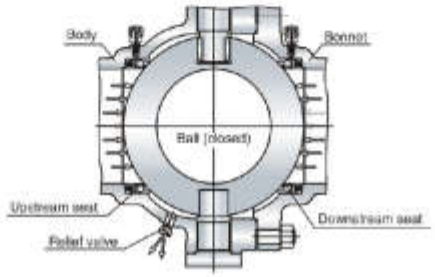
Urgent grease injection device

According to customers' requirement, the trunnion ball valves made bybofa valvecompany are provided with devices for urgent grease injection, which are on both the stem and seat for the trunnion ball valves of DN>150mm (NPS6), and in the body cavity for the valve of DN<125mm. When the O ring of stem or the body seat ring is damaged due to accident, the medium leakage between body and stem can be prevented by injecting the sealing grease through the device.



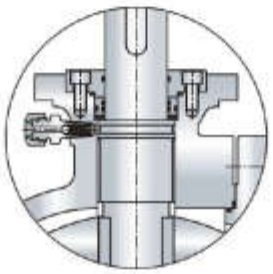
Double-block and bleed functions

In general,bofa valvetrunnion ball valve features the front ball sealing design structure. Each seat of the ball valve can separately cut off the medium at both inlet and outlet of the valve to realize double-block functions. When the ball valve is closed, body cavity and two of the body ends can be blocked with each other even if both the inlet and outlet are under pressure, when the medium left in the body cavity might be bled through the relief valve.



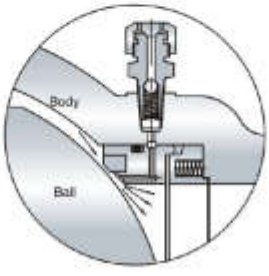
Blow-out proof stem

Blow-out proof structure is provided with for the stem, which is positioned by the up-end cap and screw, being guaranteed not to be blown-out by the medium even if at abnormal risen pressure in the cavity.



Self-relief in the body cavity

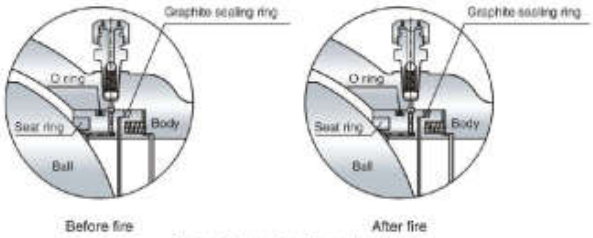
As the liquid medium left in the body cavity gasifies due to increased temperature, the pressure in the body cavity becomes abnormally higher when the medium itself in the cavity would propel the seat and self-relieves the pressure to ensure the safety of valve.



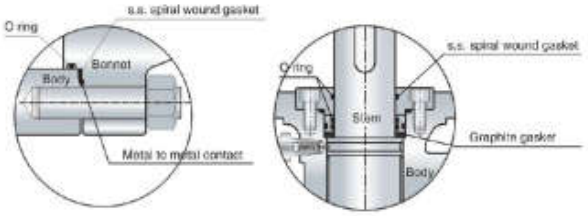
TRUNNION BALL VALVE

Fire safe design

With the valve heated in a fire application, the non-metal material parts such as seat sealing ring of PTFE, O ring for the stem, and sealing gasket for body and bonnet, might be damaged due to high temperature. Bofa valve's special design of auxiliary metal to metal or the graphite seal is provited for the trunnion ball valve to effectively prevent both internal and external leakage of the valve. As required by customers, Bofa valve's fire safe design for the trunnion ball valve meets the requirement of API 607, API 6Fa, BS 6755 and JB/T 6899.



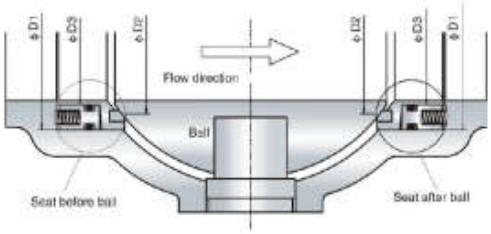
Fire safe design of seat



Fire safe design of valve body and bonnet flanges

Fire safe design of stem

The Bi-sealing design structure, i.e. seat sealing in front of the ball and seat sealing behind the ball



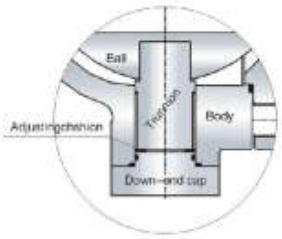
According to some special working conditions and customers' requirement,bofa valve has provided the trunnion ball valve with the Bi-sealing design structure,i.e. seat sealing in front of the ball and seat sealing behind the ball, thus the reliable sealing of the valve is ensured because the valve can perform normally even if one of the effective sealing designs becomes lost due to the abnormal condition.

Regarding the seat in front of the ball, the piston effect formed by the area difference between D1 and D2 ,plus the pre-tightened force of a spring would cause the seat in front of the ball by the pressure difference of the medium before and after the valve to touch the ball closely to form the tightness, of which the sealing force will become bigger as the pressure difference gets higher.

Regarding the seat after the ball, the piston effect formed by the area difference between D2 and D3 ,plus the pretig-htened force of a spring would cause the seat behind the ball to touch the ball closely to form the tightness, of which the sealing force will become bigger as the pressure difference gets higher.

Anti-static design

The ball of the trunnion ball valve gets close contact with each other through the trunnion, adjusting cushion, and down-end cap, the passage of static electricity thus forms together with the valve , which may lead the static electricity caused by sparks generated by friction between the ball and seat during on and off performance to the ground to prevent the possible risk of fire or explosion.

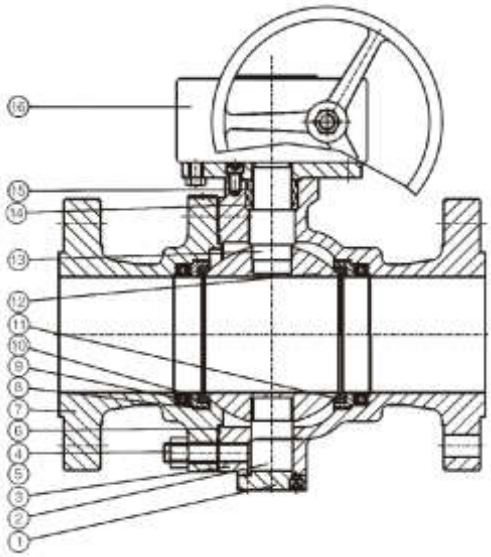


Mounting pad provided

Bofa company has provided for trunnion ball valve with a mounting pad for fixing the actuators, such as worm gear, pneumatic, electric, hydraulic, and pneumatic & hydraulic acturtors.

TRUNNION BALL VALVE

Ypical drawing of trunnion ball valve and parts composition



Application

Trunnion ball valves are suitable for use on various kinds of pipelines of Class150 ~ Class2500, PN16 ~ PN160, JIS10K ~ JIS20K to cut off or turn on the pipeline medium, of which the operation types include worm gear, manual, pneumatic or electric actuators, being in general of flange connection, and butt welding ends connection as well.

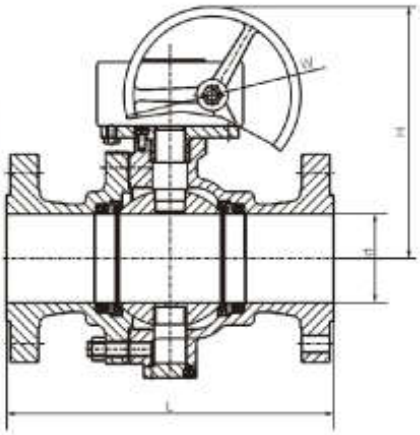
Parts and material list

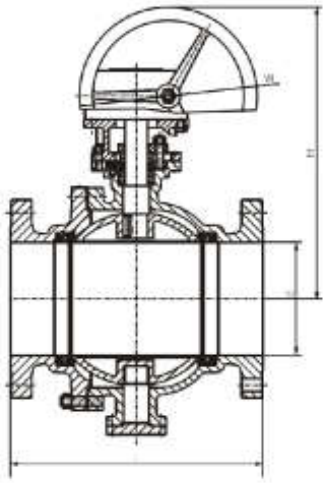
Parts No.	Parts name	Material				
		WCB/13Cr	WCB/304	WCB/316	CF8	CF8M
1	Lower trunnion	ASTM A182 F6a	ASTM A182 F304	ASTM A182 F316	ASTM A182 F304	ASTM A182 F316
2	Lower cover	ASTM A105	ASTM A105	ASTM A105	ASTM A182 F304	ASTM A182 F316
3	Body	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
4	Body bolting	ASTM A193 B7	ASTM A193 B7	ASTM A193 B7	ASTM A193 B8	ASTM A193 B8M
5	Body nut	ASTM A194 2H	ASTM A194 2H	ASTM A194 2H	ASTM A194 8	ASTM A194 8M
6	Gasket	Viton or PTFE or Graphite	Viton or PTFE or Graphite	Viton or PTFE or Graphite	Viton or PTFE or Graphite	Viton or PTFE or Graphite
7	Cap	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
8	O ring	Viton	Viton	Viton	Viton	Viton
9	Spring	SS304 or Inconel 750	SS304 or Inconel 750	SS316 or Inconel 750	SS304 or Inconel 750	SS316 or Inconel 750
10	Seat	ASTM A105	ASTM A105	ASTM A105	ASTM A182 F304	ASTM A182 F316
11	Seat	Reinforced PTFE	Reinforced PTFE	Reinforced PTFE	Reinforced PTFE	Reinforced PTFE
12	Ball	ASTM A182 F6a	ASTM A182 F304	ASTM A182 F316	ASTM A182 F304	ASTM A182 F316
13	Stem	ASTM A182 F6a	ASTM A182 F304	ASTM A182 F316	ASTM A182 F304	ASTM A182 F316
14	O ring	Viton	Viton	Viton	Viton	Viton
15	Cover	ASTM A105	ASTM A105	ASTM A105	ASTM A182 F304	ASTM A182 F316
16	Gear	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel

Note: The chart above only lists out some common composition of steel ball valve parts. We may provide other different parts material composition according to the customer's request or the actual valve working condition.

TRUNNION BALL VALVE

Main size and weight





Pressure stage	Size		Dimensions (mm)						Weight (kg)
	DN	NPS	L		d	H	H1	W	
			RF	BW					
Class150	100	4	229	305	102	330	135	300	60
	125	5	356	381	127	360	165	300	80
	150	6	394	457	152	392	193	300	101
	200	8	457	521	203	492	240	300	166
	250	10	533	559	254	548	293	300	283
	300	12	610	635	305	688	340	400	463
	350	14	686	762	337	722	372	400	622
	400	16	762	838	387	722	415	400	900
	450	18	864	914	438	804	462	500	1150
	500	20	914	991	489	952	511	600	1360
	600	24	1067	1143	591	1154	601	750	2514
	650	26	1143	1245	633	1300	700	750	3200
	700	28	1245	1346	684	1550	780	750	4000
	750	30	1295	1397	735	1650	830	750	4800
	800	32	1372	1524	779	1740	870	750	5800
	900	36	1524	1727	874	1950	970	750	8000
Class300	100	4	305	305	102	340	140	300	70
	125	5	381	381	127	370	170	300	95
	150	6	403	457	152	402	192	300	128
	200	8	502	521	203	498	246	300	234
	250	10	568	559	254	655	303	400	403
	300	12	648	635	305	658	348	400	602
	350	14	762	762	337	686	378	400	803
	400	16	838	838	387	880	429	600	1273
	450	18	914	914	432	1050	518	750	1450
	500	20	991	991	483	1110	540	750	1700
	600	24	1143	1143	584	1400	650	750	3100
	650	26	1245	1245	633	1500	750	750	4500
	700	28	1346	1346	684	1600	800	750	6000
	750	30	1397	1397	735	1720	860	750	7500
	800	32	1524	1524	779	1800	900	750	9000
	900	36	1727	1727	874	2200	1020	600	12000

TRUNNION BALL VALVE

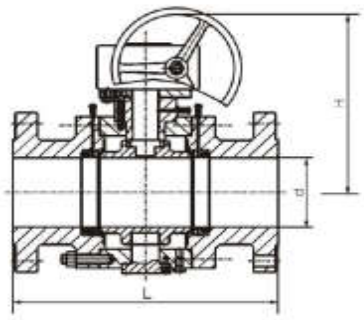
Pressure stage	Size		Dimensions (mm)							Weight (kg)
	DN	NPS	L			d	H	H1	W	
			RF	RTJ	BW					
Class600	50	2	292	295	292	51	240	94	300	32
	65	2½	330	333	330	64	290	115	300	47
	80	3	356	359	356	76	340	136	300	68
	100	4	432	435	432	102	358	152	300	106
	125	5	508	511	508	127	400	180	300	170
	150	6	559	562	559	152	445	209	400	241
	200	8	660	664	660	200	498	263	400	444
	250	10	787	791	787	248	653	312	400	668
	300	12	838	841	838	298	665	354	500	1050
	350	14	889	892	889	334	738	389	600	1317
	400	16	991	994	991	385	920	440	750	1800
	450	18	1092	1095	1092	436	1100	530	750	2400
	500	20	1194	1200	1194	487	1200	560	750	3000
	600	24	1397	1407	1397	538	1480	670	750	5400
Class900	50	2	368	371	368	47	250	98	300	45
	65	2½	419	422	419	57	300	120	300	55
	80	3	381	384	381	73	345	140	300	94
	100	4	457	460	457	98	415	162	300	141
	125	5	559	562	559	121	446	188	300	230
	150	6	610	613	610	146	477	213	400	325
	200	8	737	740	737	190	520	270	400	580
	250	10	838	841	838	234	628	322	400	850
	300	12	965	968	965	282	680	360	500	1330
	350	14	1029	1038	1029	322	750	400	600	1660
	400	16	1130	1140	1130	373	940	460	750	2280
Class1500	40	1½	305	305	305	35	280	100	300	44
	50	2	368	371	368	47	320	113	300	67
	65	2½	419	422	419	57	340	125	300	80
	80	3	470	473	470	70	385	138	300	130
	100	4	546	549	546	92	415	171	300	192
	125	5	673	676	673	111	480	200	400	335
	150	6	705	711	705	144	580	222	400	475
	200	8	832	841	832	192	584	280	400	820
	250	10	991	1000	991	239	650	340	500	1320
	300	12	1130	1146	1130	287	700	370	600	2050
Class2500	40	1½	384	387	384	38	290	105	300	72
	50	2	451	454	451	42	320	120	300	104
	65	2½	508	514	508	52	350	130	300	140
	80	3	578	584	578	62	400	150	300	202
	100	4	673	683	673	87	425	180	400	305
	125	5	794	807	794	100	500	210	400	530
	150	6	914	927	914	131	590	230	500	760
	200	8	1022	1038	1022	179	610	290	500	1200
	250	10	1270	1292	1270	223	660	350	600	2080

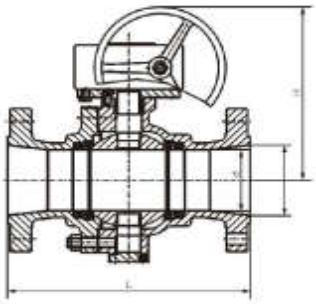
Note: 1. RF indicates raised flange, RTJ means ring joint flange, and BW is butt welding ends connection.

2. Flange dimensions of the above table for valves of NPS ≤ 24 conforms to ASME B 16.5.

3. For valves of NPS ≥ 26, the flange dimensions of above table conforms to B series of ASME B16.47 and API 605. As required by customers, flange dimensions may also conform to A series of ASME B16.47 and MSS–SP–44.

TRUNNION BALL VALVE





Forged steel trunnion ball valve

Bofa valve company manufactures in general trunnion ball valve of casted steel valve body. However, if required by customers, forged steel valve body is also available, of which the flange dimensions and face to face dimensions are the same as that of cast steel trunnion ball valve.

Ball valve with reduced bore

Except for full bore ball valves, bofa valve manufactures also the ball valve with reduced bore to meet different req uirement of customers, which not only lowers the cost and pricing, but also satisfies the special requirement of customers.

Size		Pressure stage												
		Class150				Class300				Class600				
		Dimensions (mm)												
DN	NPS	L	d	d1	H	L	d	d1	H	L		d	d1	H
										RF	RJ			
125	5	356	102	127	330	381	102	127	340	508	511	102	127	358
150	6	394	127	152	330	403	127	152	340	559	562	127	152	358
200	8	457	152	203	392	502	152	203	402	660	664	152	200	445
250	10	533	203	254	492	568	203	254	498	787	791	200	248	498
300	12	610	254	305	548	648	254	305	655	838	841	248	298	653
350	14	686	305	337	688	762	305	337	658	889	892	298	327	665
400	16	762	337	387	688	838	337	387	658	991	994	327	375	665
450	18	864	387	438	722	914	387	432	686	1092	1095	375	419	738
500	20	914	438	489	750	991	438	483	880	1194	1200	419	464	920
600	24	1067	540	591	952	1143	540	584	1110	1397	1407	511	559	1200
650	26	1143	589	633	1050	1245	589	633	1250	–	–	–	–	–
700	28	1245	633	684	1154	1346	633	684	1400	–	–	–	–	–
750	30	1295	684	735	1300	1397	684	735	1500	–	–	–	–	–
800	32	1372	735	779	1550	1524	735	779	1600	–	–	–	–	–
900	36	1524	830	874	1740	1727	830	874	1800	–	–	–	–	–

Size		Class900					Class1500					Class2500				
DN	NPS	L		d	d1	H	L		d	d1	H	L		d	d1	H
		RF	RJ				RF	RJ				RF	RJ			
65	2½	419	422	47	57	250	419	422	47	57	320	508	514	42	52	320
80	3	381	384	57	73	300	470	473	57	70	340	578	584	52	62	350
100	4	457	460	73	98	345	546	549	70	92	385	673	683	62	87	400
125	5	559	562	98	121	415	673	676	92	111	415	794	807	87	100	425
150	6	610	613	121	146	415	705	711	100	144	480	914	927	87	131	500
200	8	737	740	146	190	477	832	841	144	192	580	1022	1038	131	179	590
250	10	838	841	190	234	520	991	1000	192	239	584	1270	1292	179	223	610
300	12	965	968	234	282	628	1130	1146	239	287	650	1422	1445	223	265	660
350	14	1029	1038	303	322	680	–	–	–	–	–	–	–	–	–	–
400	16	1130	1140	322	373	680	–	–	–	–	–	–	–	–	–	–

Note: Flange dimentions of ball valve with reduced bore are the same as that of full bore ball valve.

METAL TO METAL SEALED BALL VALVE

Brief description

The seat material of general purpose ball valve employs generally non-metal material, such as PTFE. Limited by the seat material, the general purpose ball valve can not be used in case of high temperature application, and application medium with solid articles, and ash dregs neither. So, the application scope of general purpose ball valve is restricted partially. Taking this into consideration,bofa valve has developed successfully after years of hard study full range of metal to metal sealed ball valve, including floating ball valve and trunnion ball valve, which have found extensive applications in such industries as petroleum, chemistry, power, metallurgy, and light industry.

Design features of metal to metal sealed ball valve

Except for such features as wrong operation prevention, stem blow-out proof, mounting pad provided, the metal to metal sealed ball valves made bybofa valveposses the following unique features.

Advanced hardening technology employed for ball and seat

Metal to metal sealed design has been employed perfectly for the ball and seat, which has also adopted the advanced hardening technologies, such as ultro-sonic spray coating, nickel base spray welding, surface specially hardening, stellite spray welding, ceramic material with high strength and hardness, and so on. Surface hardness of the ball and seat may generally reach more than HRC60, Maximun is up to HRC74, and application temperature of the material may be up to 540℃, Maximun is 980℃. Combining strength of the material gets to more than

10000 PSI. Besides, the surface materials posses also very good resistance properties of friction and impact.Metal to metal sealed ball valves made bybofa valveare suitable for use in most criticle working conditions.

Valve stuck under high temperature prevented

In the case of high temperature working condition, the valve seat and ball would easily get stuck due to heat expansion,and the valve could not be open. Metal to metal sealed ball valves made by BOFA employ the patented design of bevelling spring loading, which would absorb the heat expansion of parts caused by the bevelling spring. So, it is ensured that the valve would not get stuck and be open and close easily in the case of high temperature condition.

An entire fire safe structure

The metal to metal sealed structure has been adopted for the valve sealing surface design. Packing is so designed with graphite, and gasket is so designed with stainless steel, plus

Excellent tightness function

A unique technique has been employed for the ball grinding, which makes the ball surface reach extreme round and smooth by rotating the ball and grinding apparatus at different directions in space. The tightness function of the valve meets completely and exceeds the standard requirement.

Natural anti-atatic structure

Metal to metal sealed ball valve with its body seat, ball, oth er metal parts , and so forth, closely contact with each other, having naturally formed a static electricity passage. In this respect, there is no need to provide special anti-static device.

Double-block and bleed function

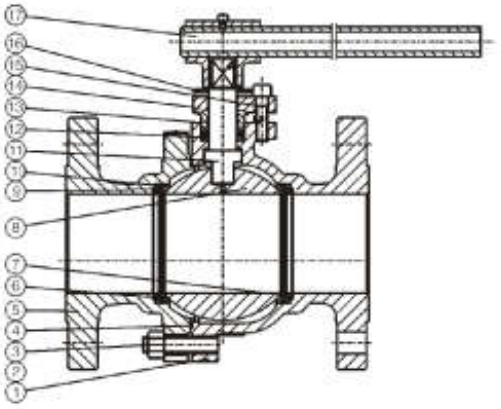
Bofa valve's metal to metal sealed trunnion ball valve is in general of the front ball sealing structure. Actually, two seats of the metal to metal sealed trunnion ball valve can both cut off separately the medium at inlet and outlet to realize double-block function. When the valve is closed, the body cavity and both the bore ends can be blocked with each other even if both ends of the valve are under pressure at the same time, where as the medium left in the body cavity may relieve through the relief valve.

Bofa valve's metal to metal sealed floating ball valve is of behin d ball sealing structure, employing in general single direction tightness. The flow direction is indicated on the valve body.

METAL TO METAL SEALED BALL VALVE

Metal to metal sealed floating ball valve

Typical drawing and parts composition



Main sizes and weights

Refer to that of floating ball valve for main dimensions and weights of metal to metal sealed floating ball valve. The flange dimensions and face to face dimensions are the same as that of floating ball valve.

Products range of metal to metal sealed floating ball valve as follows

Size	NPS	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6
	DN	15	20	25	32	40	50	65	80	100	125	150
Pressure stage or nominal pressure	Class150/PN20	☆	☆	☆	☆	☆	☆	☆	☆	△	△	△
	Class300/PN50	☆	☆	☆	☆	☆	☆	△	△	△	—	—
	Class600/PN100	☆	☆	☆	☆	☆	△	△	△	△	—	—
	Class900/PN150	☆	☆	☆	☆	△	△	△	—	—	—	—
	Class1500/PN250	☆	☆	☆	☆	△	△	—	—	—	—	—

Note: For the manual ball valve, ☆ indicates that Lever is suggested , △ indicates that worm gear is suggested.

Parts and material list

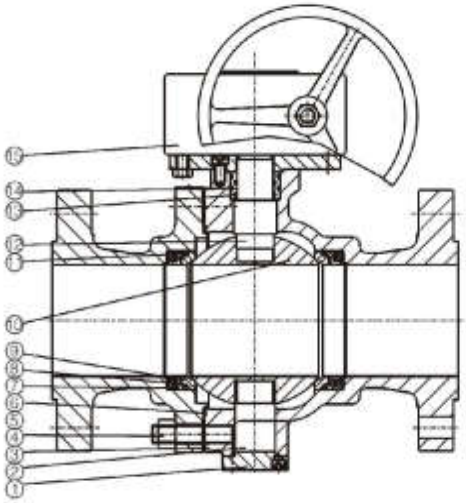
Parts No.	Parts name	Material				
		WCB/13Cr	WCB/304	WCB/316	CF8	CF8M
1	Body	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
2	Body bolting	ASTM A193 B7	ASTM A193 B7	ASTM A193 B7	ASTM A193 B8	ASTM A193 B8M
3	Body nut	ASTM A194 2H	ASTM A194 2H	ASTM A194 2H	ASTM A194 8	ASTM A194 8M
4	Gasket	304 Sheet+Graphite	304 Sheet+Graphite	316 Sheet+Graphite	304 Sheet+Graphite	316 Sheet+Graphite
5	Cap	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
6	Seat	ASTM A182 F6a + WC-Co	ASTM A182 F304 + WC-Co	ASTM A182 F316 + WC-Co	ASTM A182 F304 + WC-Co	ASTM A182 F316 + WC-Co
7	Spring	Inconel 750	Inconel 750	Inconel 750	Inconel 750	Inconel 750
8	Ball	ASTM A182 F6a +WC-Co	ASTM A182 F304 +WC-Co	ASTM A182 F316 +WC-Co	ASTM A182 F304 +WC-Co	ASTM A182 F316 +WC-Co
9	Seat seal gland	ASTM A182 F6a	ASTM A182 F304	ASTM A182 F316	ASTM A182 F304	ASTM A182 F316
10	Seat seal	Graphite	Graphite	Graphite	Graphite	Graphite
11	Stem	ASTM A182 F6a	ASTM A182 F304	ASTM A182 F316	ASTM A182 F304	ASTM A182 F316
12	Packing	Graphite	Graphite	Graphite	Graphite	Graphite
13	Gland	ASTM A182 F6a	ASTM A182 F304	ASTM A182 F316	ASTM A182 F304	ASTM A182 F316
14	Gland flange	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
15	Gland bolt	ASTM A193 B7	ASTM A193 B7	ASTM A193 B7	ASTM A193 B8	ASTM A193 B8M
16	Stop collar	Carbon steel	Carbon steel	Carbon steel	Stainless steel	Stainless steel
17	Lever	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel

Note: The chart above only lists out some common composition of steel ball valve parts. We may provide other different parts material composition according to the customer's request or the actual valve working condition.

METAL TO METAL SEALED BALL VALVE

Metal to metal sealed trunnion ball valve

Typical drawing of metal to metal sealed trunnion ball valve and parts composition



1–Down end cap
2–Trunnion
3–Body
4–Stud
5–Nut
6–Gasket
7–Seat seal gland
8–Spring
9–Seat
10–Ball
11–Gasket
12–Stem
13–O ring
14–Gland
15–Worm gear

Main sizes and weights

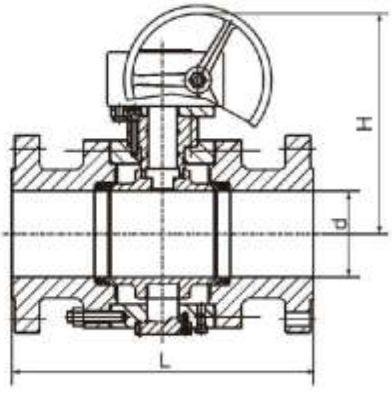
Refer to that of trunnion ball valve for main sizes and weights of metal to metal sealed trunnion ball valve, of which the flange dimensions and face to face dimensions are the same as that of trunnion ball valve.

Products range of metal to metal sealed trunnion ball valve is as below table

Size	NPS	4	5	6	8	10	12	14	16	18	20	24
	DN	100	125	150	200	250	300	350	400	450	500	600
Pressure stage or nominal pressure	Class150/PN20	△	△	△	△	△	△	△	△	△	△	△
	Class300/PN50	△	△	△	△	△	△	△	△	△	△	—
	Class600/PN100	△	△	△	△	△	△	△	△	—	—	—
	Class900/PN150	△	△	△	△	△	△	—	—	—	—	—
	Class1500/PN250	△	△	△	△	△	△	—	—	—	—	—
	Class2500/PN420	△	△	△	△	—	—	—	—	—	—	—

Forged steel metal to metal sealed trunnion ball valve

Bofa valve company's metal to metal sealed trunnion ball valve is in general employing casted steel valve body. As per customers' requirement, forged steel valve body is also available, of which the flange dimensions and face to face dimensions are the same as that of cast steel trunnion ball valve.

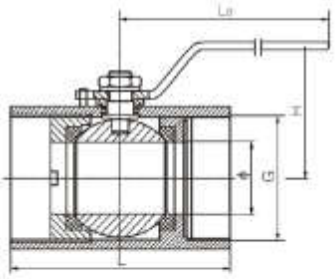


FEMALE THREADED BALL VALVE

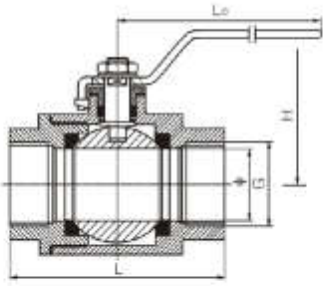
Application

Female threaded ball valves are suitable for use on pipelines of medium or low pressure to turn off or swith on pipeline medium. Operation manners are in general of manual, and pneumatic or electric actuators are available.Based on design structures, the valves get divided into three pieces, two pieces, and one piece types.

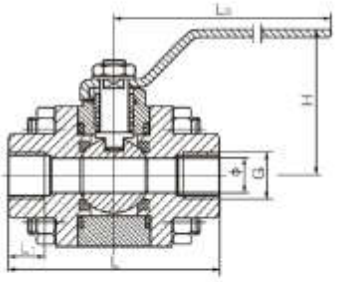
Main sizes and weights



QS11F female
threaded three pieces ball valve



QL11F female
threaded two pieces ball valve



QZ11F female
threaded one piece ball valve

Structures	Size		Rc	Dimensions (mm)				Weight(kg)
	DN	NPS		L	d	W	H	
Three pieces	10	3/8	3/8	60	10	95	57	0.4
	15	1/2	1/2	75	13	110	68	0.5
	20	3/4	3/4	80	19	110	70	0.7
	25	1	1	90	25	140	80	1.2
	32	1 1/4	1 1/4	110	32	140	85	1.9
	40	1 1/2	1 1/2	120	38	180	100	2.7
	50	2	2	144	50	180	110	3.9
	65	2 1/2	2 1/2	186	64	200	130	7.1
	80	3	3	206	76	250	150	11.5
	100	4	4	240	100	250	170	20.5
Two pieces	10	3/8	3/8	55	10	95	57	0.3
	15	1/2	1/2	65	13	110	68	0.4
	20	3/4	3/4	78	19	110	70	0.6
	25	1	1	88	25	140	80	1.0
	32	1 1/4	1 1/4	105	32	140	85	1.6
	40	1 1/2	1 1/2	112	38	180	100	2.3
	50	2	2	125	50	180	110	3.3
	65	2 1/2	2 1/2	165	64	200	130	6.0
	80	3	3	184	76	250	150	9.8
One piece	10	3/8	3/8	39	6	70	35	0.2
	15	1/2	1/2	57	9	95	44	0.3
	20	3/4	3/4	59	12	95	47	0.4
	25	1	1	71	16	110	55	0.6
	32	1 1/4	1 1/4	80	20	110	60	1.1
	40	1 1/2	1 1/2	83	25	140	75	1.5
	50	2	2	100	32	140	80	2.8

OPERATION TORQUE OF FLOATING BALL VALVE

Operation torque of floating ball valve

The operation torque data of soft sealed floating ball valve in the following table are calculated based on normal temperature and clean medium. As selecting actuator, it is suggested that drive torque of actuator be more than 1.3 times the operation torque of ball valve at least.In case of high temperature and low temperature working conditions or unclear medium, it is possible hat valve operation torque gets increased,which should be taken nto full consideration as selecting actuators. Operation torque for metal to metal sealed floating ball valve is about 4 times that of soft sealed floating ball valve.

Size NPS	DN	Operation torque of soft sealed floating ball valve N.m											
		Class150 PN20	Class300 PN50	Class600 PN100	Class900 PN150	Class1500 PN250	PN16	PN25	PN40	PN63	PN100	JIS10K	JIS20K
1/2	15	7	10	17	25	35	6	8	10	15	17	6	10
3/4	20	10	16	24	35	50	9	12	15	20	24	9	15
1	25	16	25	40	65	100	14	18	23	35	40	14	23
1 1/4	32	24	35	60	100	150	22	28	32	50	60	22	32
1 1/2	40	35	50	90	120	180	32	40	45	70	90	32	45
2	50	50	70	110	180	270	40	55	65	85	110	40	65
2 1/2	65	80	100	165	–	–	60	85	95	130	165	60	95
3	80	120	160	300	–	–	90	130	150	200	300	90	150
4	100	180	280	600	–	–	130	190	260	340	600	130	260
5	125	280	600	–	–	–	250	320	550	–	–	250	550
6	150	540	1000	–	–	–	490	620	900	–	–	490	900
8	200	960	2100	–	–	–	860	1100	1800	–	–	860	1800
10	250	1800	–	–	–	–	–	–	–	–	–	–	–

OPERATION TORQUE OF TRUNNION BALL VALVE

Operation torque of trunnion ball valve

The operation torque data of soft sealed trunnion ball valve in the following table are calculated based on normal temperature and clean medium. As selecting actuator, it is suggested that drive torque of actuator be more than 1.3 times the operation torque of ball valve at least.In case of high temperature and low temperature working conditions or unclean medium, it is possible that valve operation torque gets increased , which should be taken into full consideration asselecting actuators. Operation torque for metal to metal sealed trunnion ball valve is about 3 – 4 times that of soft sealed trunnion ball valve.

Size NPS	DN	Operation torque of soft sealed trunnion ball valve N.m													
		Class150 PN20	Class300 PN50	Class600 PN100	Class900 PN150	Class1500 PN250	Class2500 PN420	PN16	PN25	PN40	PN63	PN100	PN160	JIS10K	JIS20K
1½	40	–	–	–	–	100	160	–	–	–	–	–	–	–	–
2	50	–	–	70	100	155	250	–	–	–	–	70	105	–	–
2½	65	–	–	120	170	265	420	–	–	–	–	120	180	–	–
3	80	–	–	280	320	500	800	–	–	–	–	230	340	–	–
4	100	110	200	340	480	750	1200	100	140	170	240	340	500	100	170
5	125	180	290	550	780	1200	1900	160	220	260	350	550	820	160	260
6	150	340	480	800	1100	1700	2700	300	380	450	600	800	1150	280	450
8	200	500	850	1700	2400	3700	5900	450	630	750	1300	1700	2500	450	750
10	250	830	1400	2800	4000	6200	9900	750	1050	1250	2000	2800	4200	750	1250
12	300	1400	2400	4200	5900	9100	–	1250	1750	2100	2900	4200	6200	1250	2100
14	350	2200	3100	5800	8100	–	–	2000	2600	2800	3700	5800	–	2000	2800
16	400	2600	4800	7500	10500	–	–	2350	3200	4300	5800	7500	–	2350	4300
18	450	3700	6100	9500	–	–	–	3300	4600	5500	–	–	–	3300	5500
20	500	4800	7500	11500	–	–	–	4300	6000	6800	–	–	–	4300	6800
24	600	8200	12000	16500	–	–	–	7400	10000	11000	–	–	–	7400	11000
26	650	9600	15000	–	–	–	–	–	–	–	–	–	–	–	–
28	700	12000	19000	–	–	–	–	–	–	–	–	–	–	–	–
30	750	14000	22000	–	–	–	–	–	–	–	–	–	–	–	–
32	800	16000	28000	–	–	–	–	–	–	–	–	–	–	–	–
36	900	20000	35000	–	–	–	–	–	–	–	–	–	–	–	–

FLOW COEFFICIENT CV

Flow coefficient Cv

Size NPS	DN	Class150 – Class600		Class900		Class1500		Class2500	
		Full bore	Reduced bore	Full bore	Reduced bore	Full bore	Reduced bore	Full bore	Reduced bore
		Flow coeffecient Cv							
1/2	15	24	14	24	14	24	14	24	14
3/4	20	55	31	55	31	55	31	55	31
1	25	100	55	100	55	100	55	100	55
1 1/4	32	160	85	160	85	160	85	160	85
1 1/2	40	260	123	260	123	260	123	260	123
2	50	450	218	450	218	450	218	330	160
2 1/2	65	720	340	720	340	720	340	510	240
3	80	1100	490	1100	490	1100	490	770	350
4	100	2200	880	2200	880	2200	880	1700	680
5	125	3000	1380	3000	1380	3000	1380	2300	1060
6	150	5500	1980	5500	1980	5100	1840	4200	1500
8	200	10000	3500	10000	3500	9100	3200	7900	2800
10	250	17000	5460	17000	5460	15300	4900	13300	4300
12	300	24000	7900	24000	7900	21500	7100	18400	6100
14	350	28000	10700	26000	9940	24900	9500	–	–
16	400	36000	14000	33800	13100	31500	12300	–	–
18	450	46000	18000	43300	17000	–	–	–	–
20	500	57000	22000	53300	20600	–	–	–	–
24	600	75000	31500	70200	29500	–	–	–	–
26	650	84000	37000	–	–	–	–	–	–
28	700	93000	43000	–	–	–	–	–	–
30	750	102000	49000	–	–	–	–	–	–
32	800	110500	56000	–	–	–	–	–	–
36	900	133000	71000	–	–	–	–	–	–

CHECK VALVE

STEEL CHECK VALVE

Reliable seat seal

Design and Manufacture: Cast steel check valve to BS 1868, ASME B16.34 and API 6D;
Forged steel check valve to API 602.
Inspection and Test: API 598 or API 6D.
End flange dimension: ASME B16.5 (forNPS≤24) ;
ASME B 16.47 series B API 605 or ASME B16.47 series A MSS SP-44(for NPS> 24) .
BW end dimension ASME B16.25.
Socket-weld dimension ASME B16.11.
Face to face and end to end ASME B16.10.
Pressure-temperature ratings ASME B16.34.
Wall thickness dimension API 600 and BS 1868.

Seat

For carbon steel check valve, the seat is usually forged teel. The sealing surface of the seat is spray welded with hard alloy Specified by the customer. Renewable threaded seat is used for NPS≤10 check valves, and welded on seat can be also optional if being requested by the customer. Welded on seat is used for NPS ≥12 carbon steel gate valves. For stainless steel check Valve, integral seat is usually adopted, or to weld hard alloy directly integrally. Threaded or welded on seat is also optional for stainless steel check valve if being requested by the customer.

The features of check valve

Bolted Bonnet;
Swing and lift disc;
Metallic seating surfaces.

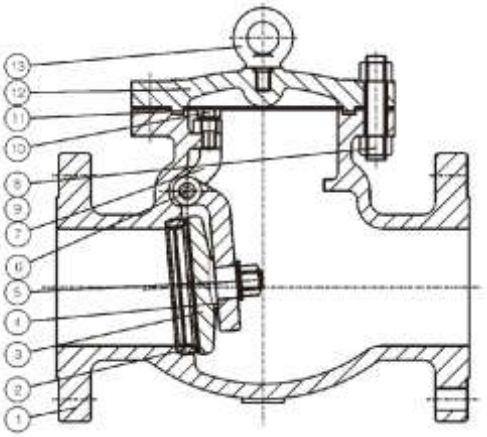
Body-To-Bonnet Joint

Stainless steel + flexible graphite wounded gasket is used for Class150 and Class300 check valve; Stainless steel + flexible graphite wounded gasket is used for Class600 check valve, and joint gasket is also optional for Class600 check valve; Ring joint gasket is used for Class900 check valve; Pressure seal design is used for Class1500 - Class2500 check valves.

Body and Bonnet Connection

The body and bonnet of Class150~Class900 check valves are usually with studs and nuts. And the body and bonnet of Class1500~Class2500 check valves are usually of pressure seal design.

STEEL CHECK VALVE



Standards

Design and Manufacture: BS 1868 or API 6D
Inspection and Test: API 598 or API 6D
End flange dimension: ASME B16.5;
ASME B16.47 A、MSS SP-44;
ASME B16.47 B、API 605

BW end dimension: ASME B16.25
Face to face (end to end): ASME B16.10
Pressure-temperature ratings: ASME B16.34
Wall thickness dimension: API 600 and BS 1868

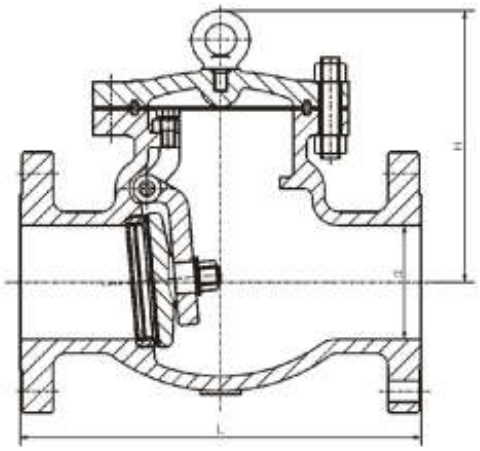
Parts and material list

Parts No.	Parts name	Material				
		WCB/Trim 1	WCB/Trim 5	WCB/Trim 8	CF8/304	CF8M/316
1	Body	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
2	Seat ring	A105+13Cr	A105+STL	A105+STL	ASTM A351 CF8	ASTM A351 CF8M
3	Disc	ASTM A216 WCB+13Cr	ASTM A216 WCB+STL	ASTM A216 WCB+13Cr	ASTM A351 CF8	ASTM A351 CF8M
4	Arm	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
5	Nut	ASTM A194 2H	ASTM A194 2H	ASTM A194 2H	ASTM A194 8	ASTM A194 8M
6	Arm pin	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F304	ASTM A182 F316
7	Yoke	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
8	Bonnet nut	ASTM A194 2H	ASTM A194 2H	ASTM A194 2H	ASTM A194 8	ASTM A194 8M
9	Bonnet bolt	ASTM A193 B7	ASTM A193 B7	ASTM A193 B7	ASTM A193 B8	ASTM A193 B8M
10	Bolt	ASTM A193 B7	ASTM A193 B7	ASTM A193 B7	ASTM A193 B8	ASTM A193 B8M
11	Gasket	304+Graphite	304 +Graphite	304+Graphite	304 + Graphite	316 + Graphite
12	Bonnet	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
13	Eye bolt	ASTM A181	ASTM A181	ASTM A181	ASTM A181	ASTM A181

Note: The chart above only lists out some common composition of steel check valve parts. We may provide other different parts material composition according to the customer's request or the actual valve working condition.

CAST STEEL SWING CHECK VALVE

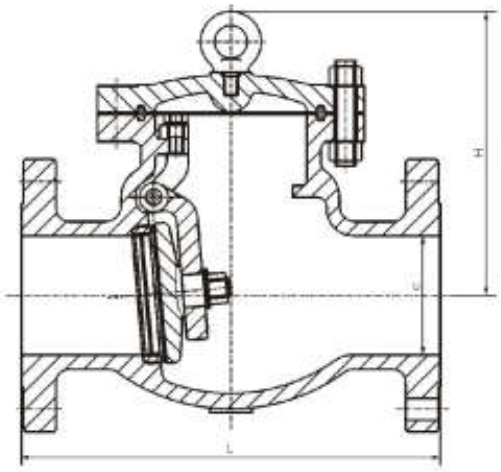
Class 150 & Class300 Cast Steel Swing Check Valve

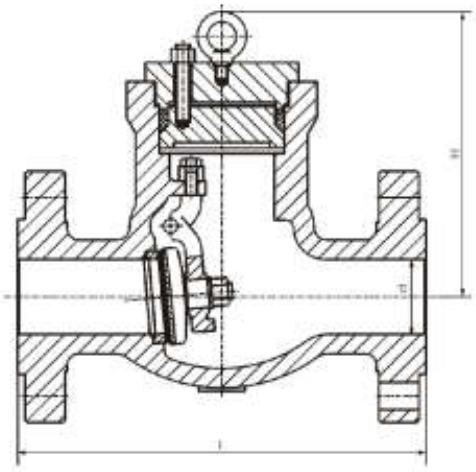


Size		Class 150						Class 300					
NPS	DN	Dimensions (mm)					Weight (Kg)	Dimensions (mm)					Weight (Kg)
		L			d	H		L			d	H	
		RF	RTJ	BW				RF	RTJ	BW			
2	50	203	216	203	51	132	15	267	283	267	51	144	20
2½	65	216	229	216	64	147	20	292	308	292	64	169	35
3	80	241	254	241	76	176	27	318	333	318	76	210	40
4	100	292	305	292	102	198	45	356	371	356	102	260	61
5	125	330	343	330	127	255	58	400	416	400	127	295	80
6	150	356	368	356	152	320	69	445	460	445	152	326	130
8	200	495	508	495	203	380	131	533	549	533	203	380	190
10	250	622	635	622	254	440	219	622	638	622	254	440	296
12	300	699	711	699	305	480	321	711	727	711	305	520	450
14	350	787	800	787	337	530	380	838	854	838	337	540	640
16	400	864	876	864	387	580	560	864	879	864	387	588	850
18	450	978	991	978	438	618	630	978	994	978	432	670	1030
20	500	978	991	978	489	657	770	1016	1035	1016	483	720	1330
24	600	1295	1308	1295	591	760	960	1346	1368	1346	584	850	1950
26	650	1295	–	1295	633	840	1250	1346	1372	1346	633	920	2300
28	700	1448	–	1448	684	920	1580	1499	1524	1499	684	1150	2600
30	750	1524	–	1524	735	980	1950	1594	1619	1594	735	1260	3200

CAST STEEL SWING CHECK VALVE

Class600 ~ Class2500 Cast Steel Swing Check Valve



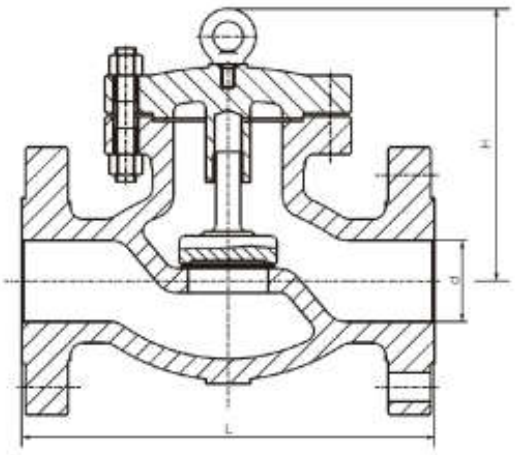


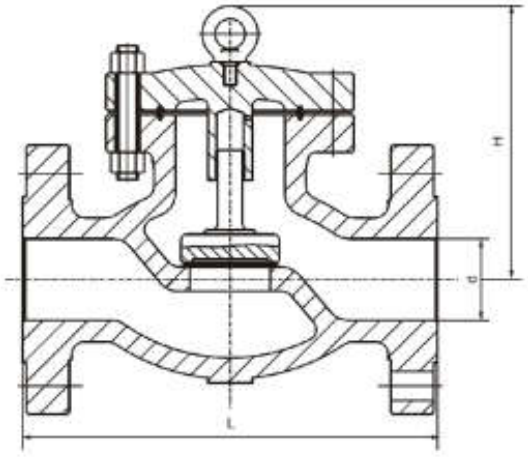
Size		Class 600						Class 900					
NPS	DN	Dimensions (mm)					Weight (Kg)	Dimensions (mm)					Weight (Kg)
		L			d	H		L			d	H	
		RF	RTJ	BW				RF	RTJ	BW			
2	50	292	295	292	51	170	28	368	371	368	47	200	48
2 1/2	65	330	333	330	64	178	40	419	422	419	57	220	75
3	80	356	359	356	76	246	68	381	384	381	73	280	95
4	100	432	435	432	102	290	117	457	460	457	98	320	135
5	125	508	511	508	127	320	155	559	562	559	121	360	200
6	150	559	562	559	152	360	192	610	613	610	146	400	264
8	200	660	664	660	200	430	340	737	740	737	190	480	424
10	250	787	791	787	248	502	515	838	841	838	234	560	730
12	300	838	841	838	298	554	750	965	968	965	282	632	1070
14	350	889	892	889	327	595	890	1029	1038	1029	311	680	1180
16	400	991	994	991	375	680	1303	1130	1140	1130	354	780	1790
18	450	1092	1095	1092	419	778	1800	1219	1232	1219	400	880	2500
20	500	1194	1200	1194	464	970	2150	1321	1334	1321	444	1050	3080
24	600	1397	1407	1397	559	1100	3200	1549	1568	1549	533	1200	4600

Size		Class 1500						Class 2500					
NPS	DN	Dimensions (mm)					Weight (Kg)	Dimensions (mm)					Weight (Kg)
		L			d	H		L			d	H	
		RF	RTJ	BW				RF	RTJ	BW			
2	50	368	371	368	47	210	48	451	454	451	35	230	68
2 1/2	65	419	422	419	57	240	75	508	514	508	47	260	100
3	80	470	473	470	70	303	120	578	584	578	57	330	165
4	100	546	549	546	92	340	180	673	683	673	73	370	260
5	125	673	676	673	111	380	294	794	807	794	92	410	440
6	150	705	711	705	136	430	385	914	927	914	111	460	580
8	200	832	841	832	174	500	634	1022	1038	1022	146	530	970
10	250	991	1000	991	222	590	1140	1270	1292	1270	184	620	1700
12	300	1130	1146	1130	263	660	1650	1422	1445	1422	219	690	2600
14	350	1257	1276	1257	289	710	2000	–	–	–	–	–	–
16	400	1384	1407	1384	330	820	2700	–	–	–	–	–	–

CAST STEEL LIFT CHECK VALVE

Class 150 ~ Class900 Cast Steel Lift Check Valve





Class 900

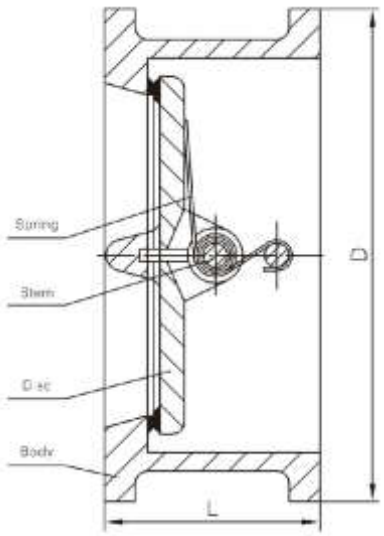
Size		Class 150						Class 300					
NPS	DN	Dimensions (mm)					Weight (Kg)	Dimensions (mm)					Weight (Kg)
		L			d	H		L			d	H	
		RF	RTJ	BW				RF	RTJ	BW			
1/2	15	108	119	108	13	76	3	152	162	152	13	78	5
3/4	20	117	130	117	19	76	4	178	191	178	19	82	6
1	25	127	140	127	25	98	5	203	216	203	25	102	8
1 1/4	32	140	153	140	32	102	7	216	229	216	32	106	11
1 1/2	40	165	178	165	38	115	8	229	242	229	38	118	13
2	50	203	216	203	51	140	15	267	283	267	51	140	26
2 1/2	65	216	229	216	64	162	22	292	308	292	64	164	33
3	80	241	254	241	76	168	28	318	333	318	76	178	50
4	100	292	305	292	102	194	42	356	371	356	102	195	86
5	125	356	368	356	127	210	60	400	416	400	127	223	120
6	150	406	419	406	152	226	75	445	460	445	152	245	180
8	200	495	508	495	203	250	118	533	549	533	203	280	220
10	250	622	635	622	254	275	194	622	638	622	254	336	310
12	300	699	711	699	305	332	320	711	727	711	305	380	510

Size		Class600						Class900					
NPS	DN	Dimensions (mm)					Weight (Kg)	Dimensions (mm)					Weight (Kg)
		L			d	H		L			d	H	
		RF	RTJ	BW				RF	RTJ	BW			
2	50	292	295	292	51	152	32	368	371	368	47	180	50
2 1/2	65	330	333	330	64	167	45	419	422	419	57	200	65
3	80	356	359	356	76	178	68	381	384	381	73	235	88
4	100	432	435	432	102	215	98	457	460	457	98	270	140
5	125	508	511	508	127	240	155	559	562	559	121	300	210
6	150	559	562	559	152	279	230	610	613	610	146	350	300
8	200	660	664	660	200	328	300	737	740	737	190	400	390

BUTTERFLY SWING CHECK VALVE

Standerds compliance

Design and Manufacture: ANSI B16.34, API 6D
Face to face: API 6D
Flanged connection: 2"~24" to ANSI B16.5 22",26"~36" to MSS-SP-44 to API 605 on request
Test and inspection: API 6D
Shell test: 150Lb 450 PSI 300Lb 1125 PSI
Seat test: 150Lb 315 PSI(Hydrostatic) 80PSI (Air)300Lb 815 PSI



Product introduction

The wafer flange clamped butterfly check valve is a energy-save product. It is manufactured based the foreign advanced technology and in accordance with relative international standards. This product is featured by excellent retaining performance, high safety and reliability and low flow resistance. It is suitable for systems in the industries of petrochemical food processing, medicine, textile, paper-making. Water supply, drainage, metallurgy, energy, and light industry, etc, used as a check valve in one way.

Featutes

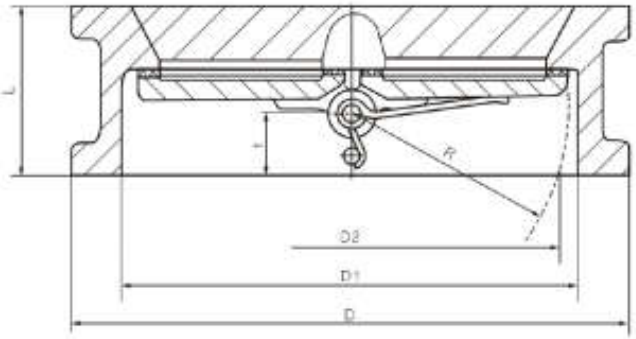
1.Small in size, light in weight, compact in structure, easy in maintenance.
2.Two torsion springs are used excerting on each of the pair valve plates. Which close the plates quickly andautomatically.
3.The quick-close action prevents the medium from flowing back and eliminates water-hammer effect.
4.This valve is short in length, so that it is rigid and easy to mount.
5.It is easy to install on pipeline which is laid horizontally or vertically.
6.This valve is tightly sealed without leakage under the pressure water test.
7.Safe and reliable in operation, high interference-resistance.
8.The connectin dimensions of flanges accord with the standards of GB4216-84 GB4216.5-84
9.The face to face dimensions are in accordance with ISO5752-82. The stem of the valve should be perpendicular to the horizontal level when the valve is mounted on horizontal pipeline. For vertical installation the direction of flow should be downward.

BUTTERFLY SWING CHECK VALVE

CLASS 150~300 Butterfly swing check valve

Materials for main parts

Patr	WCB	A352 LCB	A217 WC6	A217 WC9	A217 C5	A217 C12	A351CF8	A351CF8M
Body	A216 WCB	A352 LCB	A217 WC6	A217 WC9	A217 C5	A217 C12	A351 CF8	A351 CF8M
Disc	A351 CF8	A351 CF8	A217 Wc6	A217 Wc9	A217 C5	A217 C12	A182 F304	A182 F316
Stem	A182 F304	A182 F304	A182 F304	A182 F304	A182 F304	A182 F304	A182 F304	A182 F316
Spring	Stainless steel							
Rubber Gasket	EPDM –46~+121 Neoprene –50~+150 NBR –35~+113 Fluorubber –23~+150							



Dimensions & weight

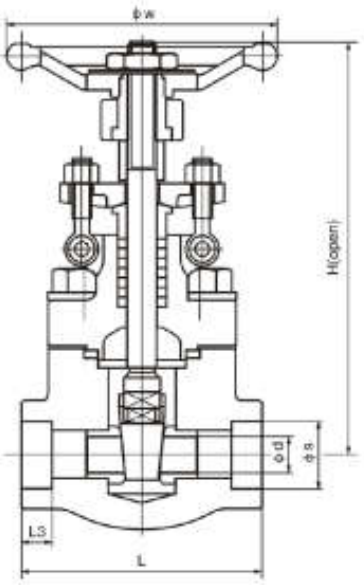
Unit: [mm] 150Lb-300Lb

Size		D	D1	D2	L	R	t	Weight (Kg)
mm	inch							
50	2"	107	65	43.3	43	28.8	19	1.5
65	2.5"	127	80	60.2	46	36.1	20	2.4
80	3"	142	94	66.4	64	43.4	28	3.6
100	4"	162	117	90.8	64	52.8	27	5.7
125	5"	192	145	116.9	70	65.7	30	7.3
150	6"	213	170	144.6	76	78.6	31	9.0
200	8"	273	224	198.2	89	104.4	33	17
250	10"	323	265	233.7	114	127	50	26
300	12"	378	310	283.9	114	148.3	43	42
350	14"	438	360	332.9	127	172.4	46	55
400	16"	439	410	381.0	140	197.4	52	75
450	18"	555	450	419.9	152	217.8	58	101 107
500	20"	594	505	467.8	152	241	58	111
600	24"	690	624	572.6	178	295.4	73	172
700	28"	800	720	680	229	354	98	219

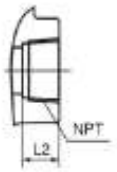
FORGED VALVE

FORGED STEEL GATE VALVE

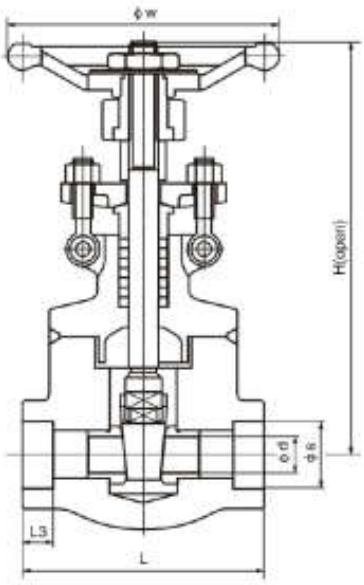
Class150 ~ Class1500 Forged Steel Gate Valve



Bolted Bonnet Socket-welding End



Threaded End



Welded Bonnet Socket-welding End

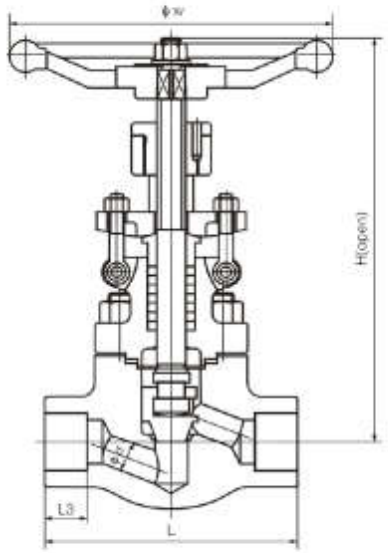
Standards

Design and Manufacture: API 602
Inspection and Test: API 598
Socket-weld dimension: ASME B16.11
End threads dimension: ASME B1.20.1
Pressure-temperature ratings: ASME B16.34

Class	Size		Dimensions (mm)					NPT	Weight(kg)
	NPS	DN	L	d	S	H	W		
150~800	1/2	15	79	9.5	21.8	182	100	1/2	2
	3/4	20	92	12.7	27.1	208	100	3/4	2.5
	1	25	111	17.5	33.8	254	125	1	5
	1 1/4	32	120	23.8	42.6	290	160	1 1/4	6
	1 1/2	40	120	28.6	48.7	330	180	1 1/2	7
	2	50	140	36.5	61.1	372	200	2	11
900	1/2	15	111	9.5	21.8	182	100	1/2	2.5
	3/4	20	111	12.7	27.1	208	100	3/4	4.5
	1	25	120	17.5	33.8	254	125	1	6
	1 1/4	32	120	23.8	42.6	290	160	1 1/4	7
	1 1/2	40	140	28.6	48.7	330	180	1 1/2	11
	2	50	170	36.5	61.1	372	200	2	15
1500	1/2	15	111	9.5	21.8	182	100	1/2	4
	3/4	20	111	12.7	27.1	208	100	3/4	4
	1	25	120	17.5	33.8	254	125	1	7
	1 1/4	32	120	23.8	42.6	290	160	1 1/4	9
	1 1/2	40	140	28.6	48.7	330	180	1 1/2	12
	2	50	170	36.5	61.1	372	200	2	17

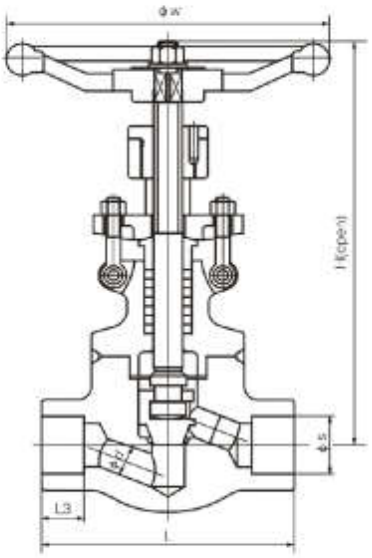
FORGED STEEL GLOBE VALVE

Class150 ~ Class1500 Forged Steel Globe Valve



Bolted Bonnet Socket-welding End

Threaded End



Welded Bonnet Socket-welding End

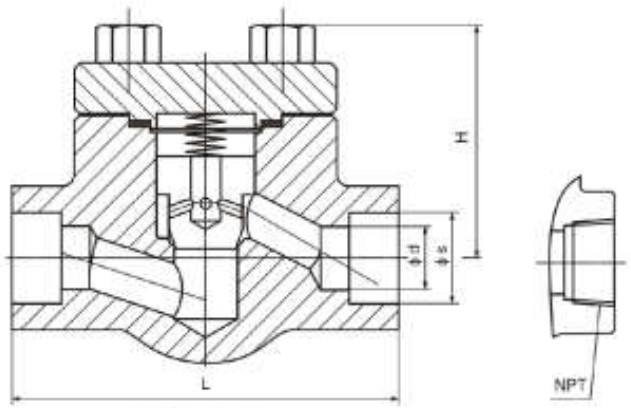
Standards

Design and Manufacture: API 602.
Inspection and Test: API 598.
Socket-weld dimension: ASME B16.11.
End threads dimension: ASME B1.20.1.
Pressure-temperature ratings: ASME B16.34.

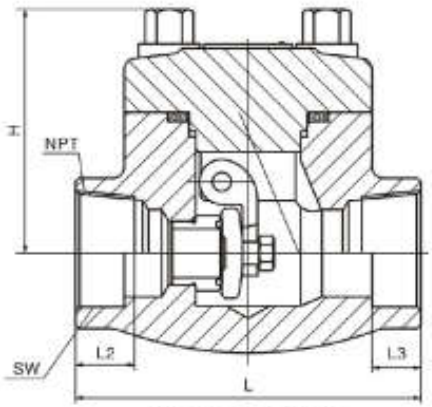
Class	Size		Dimensions (mm)					NPT	Weight(kg)
	NPS	DN	L	d	S	H	W		
150~800	1/2	15	79	9.5	21.8	158	100	1/2	2
	3/4	20	92	12.7	27.1	192	100	3/4	3
	1	25	111	17.5	33.8	252	125	1	4
	1 1/4	32	120	23.8	42.6	252	160	1 1/4	6
	1 1/2	40	152	28.6	48.7	289	180	1 1/2	7
	2	50	172	36.5	61.1	330	200	2	11
900~1500	1/2	15	111	9.5	21.8	207	100	1/2	2
	3/4	20	111	12.7	27.1	207	100	3/4	3
	1	25	120	17.5	33.8	240	125	1	4
	1 1/4	32	152	23.8	42.6	258	160	1 1/4	6
	1 1/2	40	172	28.6	48.7	290	180	1 1/2	8
	2	50	220	36.5	61.1	337	200	2	13

FORGED STEEL CHECK VALVE

Class150 ~ Class1500 Forged Steel Check Valve



Lift check valve



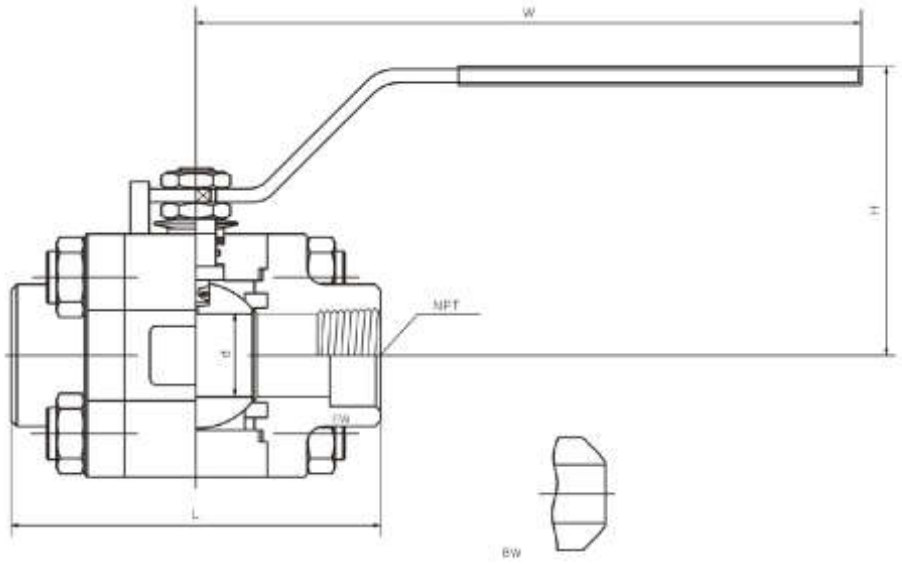
Swing check valve

Standards

Design and Manufacture: API 602.
Inspection and Test: API 598.
Socket-weld dimension: ASME B16.11.
End threads dimension: ASME B1.20.1.
Pressure-temperature ratings: ASME B16.34.

Class	Size		Lift check valve						Swing check valve					
	NPS	DN	Dimensions (mm)				NPT	Weight (kg)	Dimensions (mm)				NPT	Weight (kg)
			L	d	S	H			L	d	S	H		
150~800	1/2	15	79	9.5	21.8	61	1/2	1.2	79	9.5	21.8	61	1/2	1.0
	3/4	20	92	12.7	27.1	61	3/4	1.4	92	12.7	27.1	61	3/4	1.1
	1	25	111	17.5	33.8	78	1	2.3	111	17.5	33.8	78	1	1.9
	1 1/4	32	120	23.8	42.6	84	1 1/4	3.9	120	23.8	42.6	84	1 1/4	3.4
	1 1/2	40	152	28.6	48.7	103	1 1/2	5.6	120	28.6	48.7	101	1 1/2	4.5
	2	50	172	36.5	61.1	118	2	8.9	140	36.5	61.1	120	2	7.3
900	1/2	15	111	9.5	21.8	79	1/2	3.0	111	9.5	21.8	79	1/2	3.0
	3/4	20	111	12.7	27.1	79	3/4	3.4	111	12.7	27.1	79	3/4	3.6
	1	25	120	17.5	33.8	97	1	4.8	120	17.5	33.8	97	1	4.3
	1 1/4	32	152	23.8	42.6	104	1 1/4	6.9	120	23.8	42.6	105	1 1/4	6.1
	1 1/2	40	172	28.6	48.7	120	1 1/2	10.7	140	28.6	48.7	120	1 1/2	8.8
	2	50	200	36.5	61.1	139	2	14.6	170	36.5	61.1	140	2	12.6
1500	1/2	15	111	9.5	21.8	79	1/2	3.0	111	9.5	21.8	79	1/2	3.0
	3/4	20	111	12.7	27.1	79	3/4	3.4	111	12.7	27.1	79	3/4	3.6
	1	25	120	17.5	33.8	97	1	4.8	120	17.5	33.8	97	1	4.3
	1 1/4	32	152	23.8	42.6	104	1 1/4	6.9	120	23.8	42.6	105	1 1/4	6.1
	1 1/2	40	172	28.6	48.7	120	1 1/2	10.7	140	28.6	48.7	120	1 1/2	8.8
	2	50	200	36.5	61.1	139	2	14.6	170	36.5	61.1	140	2	12.6

3PCS FORGED STEEL BALL VALVES



CL800–CL1500

Connection ends may be pipe–welded (butt–welding or socket welding)and/or threaded, design to BS5351

Specification (NPS)	F.P		1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face (mm)	L1		92	92	92	111	127	140	152	152
Center to handle end (mm)	B		108	108	108	146	178	178	200	200
Height (mm)	H		51	51	51	108	81	85	105	105
Flow port dimension (mm)	d	CL800	6	9	13	18	23	28	35	49
		CL1500	6	9	13	19	25	32	38	49
Weight (Kg)			2.5	2.4	2.3	3.4	5.4	6.4	11	13
			2.5	2.4	2.5	3.7	5.8	6.8	11.5	13.7

CL2500

Connection ends may be pipe–welded (butt–welding or socket welding)and/or threaded, design to BS5351

Specification (NPS)	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face (mm)	L			110	125	135		160	
Center to handle end (mm)	B			170	230	230		310	
Height (mm)	H			95	110	125			
Flow port dimension (mm)	d			13	19	25		38	
Weight (Kg)				2.7	4.1	6.3		12	

PLUG VALVE

PLUG VALVE

Plug valve design construction and specifications

BOFA'S cast plug valves conform to API 599, API 6D and ANSI B16.34.Each is tested according to API 598, API 6D and Marking as per MSS-SP-25.

BOFA'S plug valve has inverted pressure balance lubricated plug valve, connection lifting plug valve, Orbit plug valve, Sleeve type soft sealing plug valve and 3-way 4-way plug valve, Plug valves with Single or double flush. Our only explain there into a rew. If you need other, please to inquire us. Plug valve acc. To ANSI is applicable to the cutting and connection of pipelines medium that are used in various industries such as petroleum, chemical industry, pharmacy, chemical fertilizer, power industry etc. under nominal pressure of Class 150Lb~1500Lb, and working temperature of -29~550. The end of plug valve: Butt welded end and flange. Diving manner: hand wheel, gear, wrench.

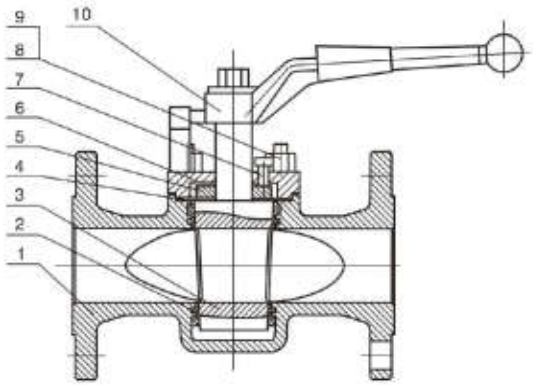
Products performance specifications

Nominal pressure Lbs	Shell seat (MPa)	Sealing test (MPa)	Suitable temp (℃)	Suitable madium (℃)
150	3.0	2.2	≤180℃	WOG
300	7.5	5.5		
600	15.0	11.0		
900	22.5	16.5		

Sleeve type soft sealing plug valve

Standards compliance

Design and Manufacture: API 599, API 6D
Face to face(end to end): ANSI B 16.10
Flange connection: ANSI B16.5
Test and inspection: API 598, API 6D



Main structural features

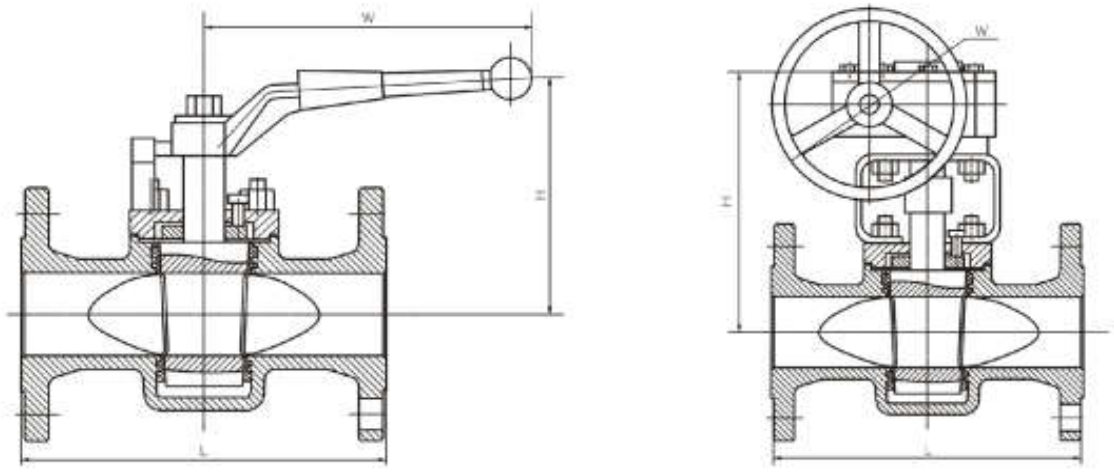
Bolt cover, plug 90 degree around.
Its sealing is realized by the sealing face around the sleeve. It has unique 360 degree metal edge for protection and fixing of the sleeve. There is no cavity in the valve for accumulation of medium. Metal edge provides the function of self-cleaning when theplug is rotated, applicable to the operation condition that is glutinous and apt to smudge. Double direction.

Main parts materials

NO.	Part name	Material				
		A216 WCB	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
1	Body	A216 WCB	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
2	Sleeve	PTFE/RTFE				
3	Plug	A182 F6a	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
4	Gasket	Flexible graphite+stainless steel/ PTFE				
5	Adjusting gasket	A182 F6a	A182 F304	A182 F316	A182 F304L	A182 F316L
6	Cover	A216 WCB	A351 CF8	A351 CF8	A351 CF3	A351 CF3M
7	Adjusting bolt	A193 B7	A193 B8	A193 B8M	A193 B8M	A193 B8M
8、9	Bolt/nut	B7/2H	B8/8	B8M/8M	B8M/8M	B8M/8M
10	Wrench	ASTM A105/A216 WCB				

PLUG VALVE

Sleeve type soft sealing plug valve



Dimensions																
Class 150Lb																
Size	inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14
L-RF	mm	108	117	127	140	165	178	190	203	229	254	267	292	330	356	381
H	mm	110	115	115	135	140	150	165	180	380	460	520	580	620	680	760
W	mm	175	175	175	220	280	305	350	405	300	300	320	320	350	380	450
Weight	Kg	8.5	9.5	10.5	12	14	18	22	26	40	60	70	130	219	381	570

Dimensions																
Class 300Lb																
Size	inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14
L-RF	mm	140	152	165	178	190	216	241	283	305	381	403	419	457	502	762
H	mm	110	115	115	135	140	150	165	180	380	460	520	580	620	680	760
W	mm	175	175	175	220	280	305	350	405	300	300	320	320	350	380	450
Weight	Kg	9.5	10.5	12	14	16	20	24	29	53	75	85	185	230	390	550

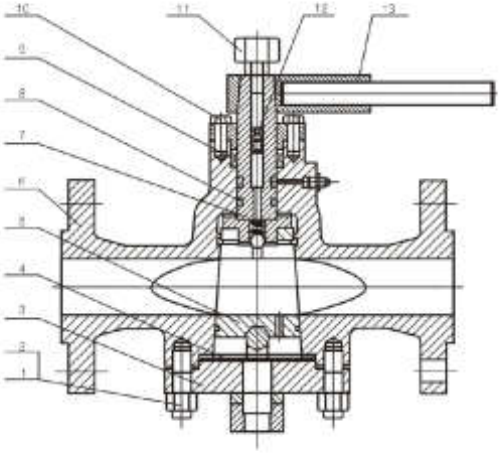
Dimensions																
Class 600Lb																
Size	inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14
L-RF	mm	165	190	216	229	241	292	330	356	432	508	559	660	787	838	889
H	mm	110	115	115	135	140	150	165	180	380	460	520	580	620	680	760
W	mm	175	175	175	220	280	305	350	405	300	300	320	320	350	380	450
Weight	Kg	11	13	17	20	23	27	31	36	72	98	141	245	330	515	710

Dimensions																
Class 900Lb																
Size	inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14
L-RF.BW	mm	229	229	254	279	305	368	419	381	457	559	610	737	838	965	1029
H	mm	110	115	115	135	140	150	165	180	380	460	520	580	620	680	760
W	mm	175	175	175	220	280	305	350	405	300	300	320	320	350	380	450
Weight	Kg	13	16	21	24	28	32	40	47	91	117	165	285	420	610	860

4" or above with worm gear

PLUG VALVE

Inverted pressure balance lubricated plug valve



Standards compliance

Design and Manufacture: API 599, API 6D
Face to face(end to end): ANSI B 16.10
Flange connection: ANSI B16.5
Butt welded end: ANSI B16.25
Test and inspection: API 598, API 6D

Main structural features

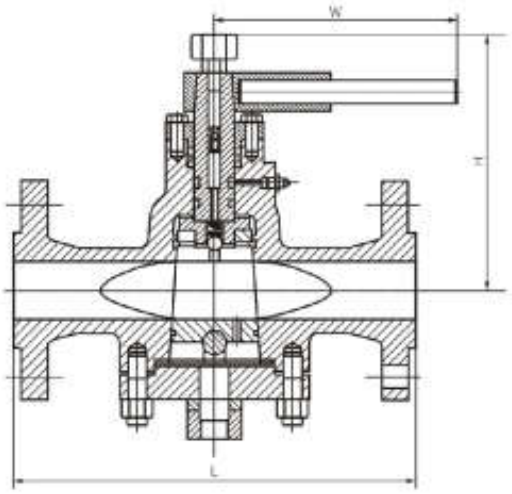
Bolt cover, structure of flip-chip balanceable pressure and light on/off operation. An oil grove is set between valve body and seal surface, which may infuse the seal grease to increase the seal capability.

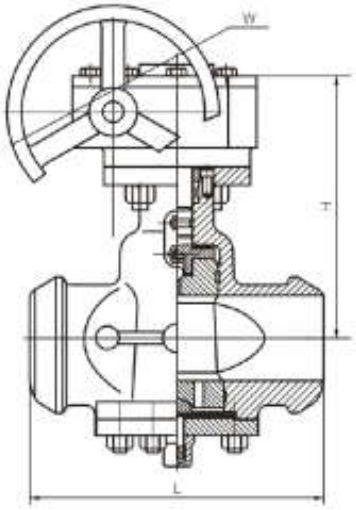
Main parts materials

NO.	Part name	Material				
		A216 WCB	A351 CI8	A351 CF8M	A351 CF3	A351 CF3M
1、2	Body/Nut	A193 B7/A194 2H	A193 B8/A194 8	A193 B8M	A194 8M	
3	Cover	A216 WCB	A351 CF8	A351 CF8M		
4	Gasket	Flexible graphite+stainless steel/PTFE				
5	Plug	A182 F304	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
6	Body	A216 WCB	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
7	Stem	A182 F410	A182 F304	A182 F316	A182 F304L	A351 CF3M
8	"O" ring	NBR/FEP/SBR				
9	Packing	Flexible graphite/PTFE				
10	Gland	A216 WCB	A351 CF8	A351 CF8M		
11、12	Dichozzle/check valve	Material see body				
13	Wrench	ASTM A47-32510 A216 WCB				

PLUG VALVE

Inverted pressure balance lubricated plug valve





Dimensions																
Class 150Lb																
Size	inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14
L-RF	mm	108	117	127	140	165	178	190	203	229	254	267	292	330	356	381
H	mm	180	180	185	200	210	215	250	270	300	340	365	400	450	510	590
W	mm	400	400	500	500	600	600	820	820	300	300	320	320	350	380	380
Weight	Kg	10	12	14	17	19	21	29	33	48	75	96	125	171	230	370

Dimensions																
Class 300Lb																
Size	inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14
L-RF	mm	140	152	165	178	190	216	241	283	305	381	403	419	457	502	762
H	mm	180	180	185	200	210	215	250	270	300	340	365	400	450	510	590
W	mm	400	400	500	500	600	600	820	820	300	300	320	320	350	380	380
Weight	Kg	12	14	16	19	21	24	31	36	61	86	130	190	225	380	560

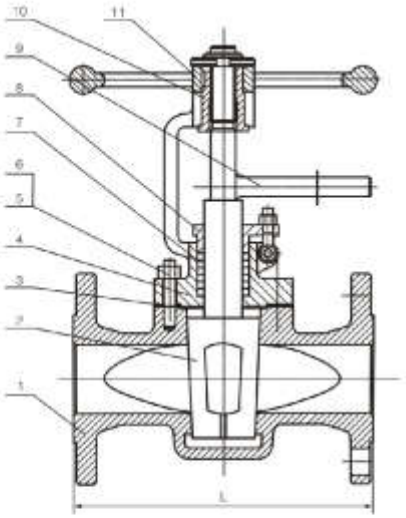
Dimensions																
Class 600Lb																
Size	inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14
L-RF	mm	165	190	216	229	241	292	330	356	432	508	559	660	787	838	889
H	mm	180	180	185	200	210	215	250	270	300	340	365	400	450	510	590
W	mm	400	400	500	500	600	600	820	820	300	300	320	320	350	380	380
Weight	Kg	14	16	18	20	24	29	35	47	91	129	210	320	660	920	1250

尺寸 Dimensions																
Class 900Lb																
Size	inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14
L-RF.BW	mm	229	229	254	279	305	368	419	381	457	559	610	737	838	965	1029
H	mm	180	180	185	200	210	215	250	270	300	340	365	400	450	510	590
W	mm	400	400	500	500	600	600	820	820	300	300	320	320	350	380	380
Weight	Kg	17	19	21	24	30	37	44	65	110	160	255	380	810	1050	1460

4" or above with worm gear

PLUG VALVE

Connection lift plug valve



Standards compliance

Design and Manufacture: API 599, API 6D
Face to face(end to end): ANSI B 16.10
Flanged connection: ANSI B16.5
Butt welded end: ANSI B16.25
Test and inspection: API 598, API 6D

Main structural features

Bolt bonnet OS & Y lifting-round plug, opening and closing of the valve is carried out while the sealed surface is taken off, so it will not cause abrasion on the sealed surface. Double direction.

Principle of opening and closing of the valve

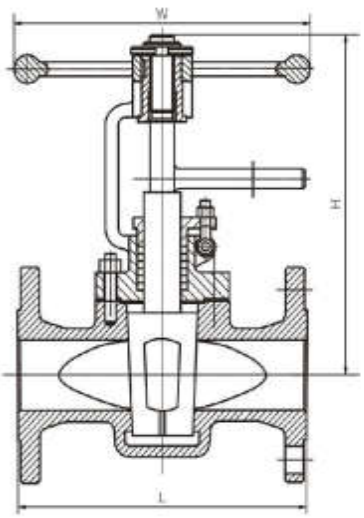
Process of opening and closing of the valve. When opening the valve, first of all, turn the hand wheel to make the plug lifted and separated with the sealed surface, the turn the handle by 90 degree to connect the channel of plug with the channel of valve body. So that the valve is opened. When closing the valve, first of all turn the handle by 90 degree to mark the channel of plug vertical to the channel of valve body, and then the hand wheel to descend the plug. So that the valve is closed.

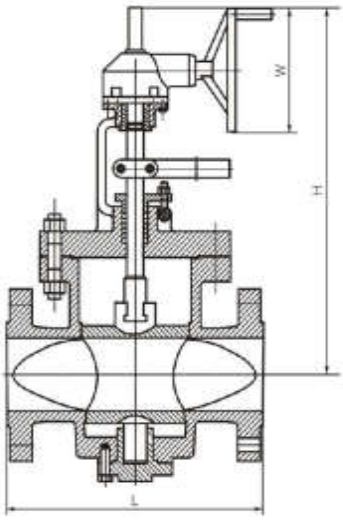
Main parts materials

NO.	Part name	Material						
		A216 WCB	A217 WC9	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
1	Body	A216 WCB	A217 WCB	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
2	Plug	A351 CF8	A351 CF8	A351 Cf8	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
3	Gasket	Flexible graphite+stainless steel/PTFE						
4	Cover	A216 WCB	A217 WC9	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
5	Bolt	A193 B7	A193 B16	A193 B16	A193 B8	A193 B8M		
6	Nut	A194 2H	A194 4	A194 4	A194 8	A193 8M		
7	Packing	Flexible graphite/PTFE						
8	Gland	A216 WCB	A216 WC9	A216 C5	A351 CF8	A351 CF8M]		
9	Wrench	A216 WCB	A216WC9	A216 C5	A351 CF8	A351 CF8M		
10	Yoke nut	A439-D2/Cu-Alloy						
11	Hand wheel	ASTM A536 Gr.60-40-18 A216 WCB						

PLUG VALVE

Connection lift plug valve





Dimensions																
Class 150Lb																
Size	inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14
L-RF	mm	108	117	127	140	165	178	190	203	229	254	267	292	330	356	381
H	mm	190	195	225	260	280	310	340	395	435	470	535	590	630	680	720
W	mm	120	140	140	180	200	220	260	300	300	340	400	450	450	500	500
Weight	Kg	9	10	11	17	19	23	25	32	55	82	98	130	178	250	380

Dimensions																
Class 300Lb																
Size	inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14
L-RF.BW	mm	140	152	165	178	190	216	241	283	305	381	403	419	457	502	762
H	mm	190	195	225	260	280	310	340	395	435	470	535	590	630	680	720
W	mm	120	140	140	180	200	220	260	280	300	340	400	450	450	500	500
Weight	Kg	10	12	14	19	21	28	34	39	75	85	135	200	255	415	650

Dimensions																
Class 600Lb																
Size	inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14
L-RF.BW	mm	165	190	216	229	241	292	330	356	432	508	559	660	787	838	889
H	mm	190	195	225	260	280	310	340	395	435	470	535	590	630	680	720
W	mm	120	140	140	180	200	220	260	280	300	340	400	450	450	500	500
Weight	Kg	13	14	19	23	25	32	40	55	105	139	300	440	730	1150	1570

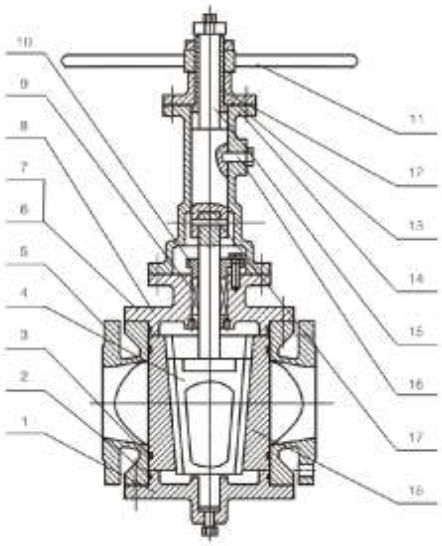
Dimensions																
Class 900Lb																
Size	inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14
L-RF.BW	mm	229	229	254	279	305	368	419	381	457	559	610	737	838	965	1029
H	mm	190	195	225	260	280	310	340	395	435	470	535	590	630	680	720
W	mm	120	140	140	180	200	220	260	280	300	340	400	450	450	500	500
Weight	Kg	16	17	26	30	33	39	50	70	137	181	397	590	860	1470	1880

PLUG VALVE

Orbit plug valve

Standards compliance

Design and Manufacture: API599,API 6D
Face to face(end to end): ANSI B 16.10
Flanged connection: ANSI B 16.5
Test and inspection: API 6D



Main structural features

Bolt bonnet OS & Y lifting-round plug, Its sealing is realized by the sealing rings around the valve disc. It has unique protection of swallow tailed sink and fixed sealing rings. Double direction.

Principle of opening and closing of the valve

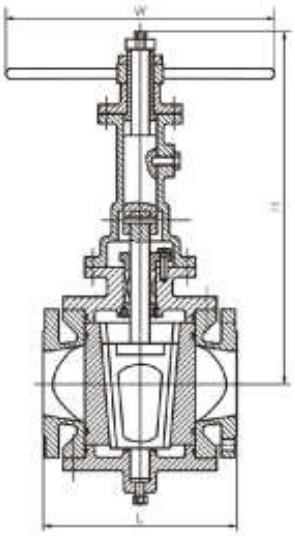
When the valve is fully opened, the channel of plug is in alignment with the channel of valve body, which can ensure ideal and owest decrease on pressure, When the hand wheel is turned, the plug will rotate toward the closing direction, and make the same time draft the rotation of valve seat will be se-parated; if the hand wheel is turned inversely, first of all the plug will move upward, and the valve disc is turned by 90 degree driven by the plug, and finally the channel of plug will be in alignment with the channel of valve body, so that valve is be fully opened.

Main parts materials

Number	Part name	Meterial				
		A216WCB	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
1、14	Botten/yoke	A216WCB	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
2	"O"ring	NBR/FEP/SBR/PTFE				
3	Sealing ring	NBR/FEP/SBR/PTFE				
4	Plug	A182F6a	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
5.8	Body cover	A216WCB	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
6.7	Bolt/nut	B7/2H	B8/8	B8M/8M	B8M/8M	B8M/8M
9	Packing	Flexible graphite +stainless steel/PTFE				
10	Gland	A216 WCB	A351 CF8	A351 CF8	A351 CF3	A351 CF3M
11	Hand wheel	ASTM A536 Gr.60-40-18 A216 WCB				
12	Yoke nut	Cu- Alloy/A439-D2				
13	Yoke nut bushing	A182WCB	A351 CF8			
17	Pin	A182 F6a	A 182 F321	A182 F321	A182 F316	A182 F316L
15、18	Stem/Disc	A182 F6a	A182 F304	A182 F316	A182 F304L	A182 F316L
16	Guilding stud	A182 F6a	A182 F304	A 182 F316	A182 F304L	A182 F316L

PLUG VALVE

Orbit plug valve



Dimensions																
Class 150Lb																
Size	inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14
L-RF	mm	108	117	127	140	165	178	190	203	229	254	267	292	330	356	381
H	mm	230	260	300	340	380	435	460	490	525	570	625	700	780	870	980
W	mm	120	140	140	180	200	220	260	280	300	340	400	450	450	500	500
Weight	Kg	10	12	16	25	29	34	39	50	65	95	135	210	275	350	605

Dimensions																
Class 300Lb																
Size	inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14
L-RF.BW	mm	140	152	165	178	190	216	241	283	305	381	403	419	457	502	762
H	mm	230	260	300	340	380	435	460	490	525	570	625	700	780	870	980
W	mm	120	140	140	180	200	220	260	280	300	340	400	450	450	500	500
Weight	Kg	11	13	20	27	31	37	44	60	82	115	165	225	305	405	650

Dimensions																
Class 600Lb																
Size	inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14
L-RF.BW	mm	165	190	216	229	241	292	330	356	432	508	559	660	787	838	889
H	mm	230	260	300	340	380	435	460	490	525	570	625	700	780	870	980
W	mm	120	140	140	180	200	220	260	280	300	340	400	450	450	500	500
Weight	Kg	13	15	22	29	34	41	54	68	99	128	191	258	430	650	870

Dimensions																
Class 900Lb																
Size	inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14
L-RF.BW	mm	229	229	254	279	305	368	419	381	457	559	610	737	838	965	1029
H	mm	230	260	300	340	380	435	460	490	525	570	625	700	780	870	980
W	mm	120	140	140	180	200	220	260	280	300	340	400	450	450	500	500
Weight	Kg	15	19	24	32	38	47	62	75	115	147	220	379	490	720	1020

BUTTERFLY VALVE

BUTTERFLY VALVE

Connection lift plug valve

BOFA'S butterfly valves have center line, eccentric and triple eccentric types. Classified for stop type, adjust type and vent types, Metal seal and non-metal seal. The liner materials of centerline butterfly valve. Including PTEF, NR, EPDM, NBR, SI, VITON, CR, IIP, suitable for different temperature and medium. Eccentric butterfly valve has flexible seal, multiple-line seal and metal seal, The end connection of butterfly valve has flexible seal, multiple-line seal and metal seal. The end connection of butterfly valve including wafer, double flange, butt weld, lug wafer. There are rich varieties of types for selection, only some types are shown in this book, please contact us for more information.

Butterfly valve design construction and specifications

BOFA'S cast butterfly valves conform to API 609, MSS-SP-68, ANSI B16.34. Each is tested according to API 598 and marking as per MSS-SP-25.

Construction is as follows

Triple eccentric butterfly valve, Beveled wedge disc, small friction and torque, self-clean, Manual, electric, pneumatic and gear operation etc Applicable for chemical industry, petroleum, water supply and drain of city, heat supply, metallurgy, water treatment etc. Close and open smartly, prompt, light weight, small figure.

Seat material and working temperature

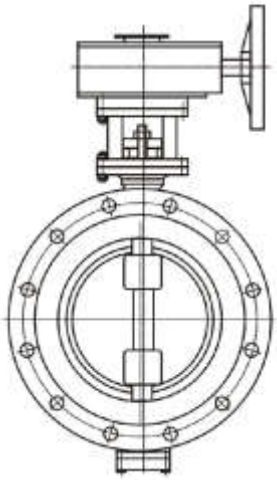
EPDM	-40~+125℃
NBR	-20-82℃
SI	-70~+150℃
VITON	-23~+150℃
PTFE	23~+150℃
316+Graphite	-46~+350℃
STL/STL	-46~+350℃

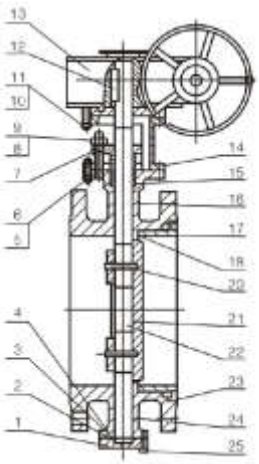
Pressure test

Class	Shell test(MPa)	Shell test(MPa)	Air test (Mpa)
150Lb	3.1	2.3	0.5~0.7
300Lb	7.6	3.6	0.5~0.7
600Lb	16.0	11.0	0.5~0.7

BUTTERFLY VALVE

Tripe eccentric butterfly valve





Technical requirements

1. Design and manufacture comply to MSS SP 67-1997
2. Inspect and test comply to API 598
3. Face to face dimetion complies to Bs5155
4. Flanges comply to API 605
5. Pressure-temperature grade complies to ANSI B6.34

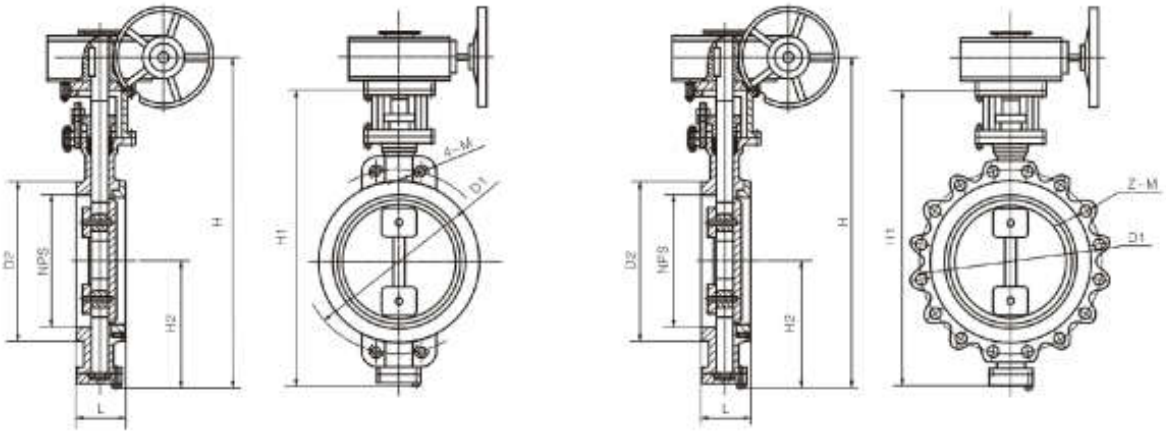
Three-dimensional incline taper airproof seat 90 cleaning
Manual, electric, pneumatic and gear operation etc.
A216WCB, A351 CF8, A351CF8M
A217LCB, A351 CF3, A351CF3M

Material specification

NO.	Part name	Material				
		A216 WCB	A217 LCB	A351 CF8	A351CF8M	A351CF3M
1	Nether cover	A105	A105	A182 F304	A182 F316	A182 F316L
2	Bearing	A182 F6A	A182 F304	A182 F304	A182 F316	A182 F316L
3	Gasket	F304+Flexible graphite		PTFE		
4	Body	A216 WCB	A217 LCB	A351 CF8	A351CF8M	A351CF3M
5	Nut	A194 2H	A194 4	A194 8	A194 8M	A194 8M
6	Bolt	A193 B7	A193 B16	A193 B8	A193 B8M	A193 B8M
7	Gland	A182 F410	A182 F304	A182 F304	A182 F316	A182 F316L
12	Key	A194 2H				
13	Gear action	Nodular cast iron				
14	Yoke	A216 WCB		A351 CF8		
15	Shaft packing	Flexible graphite		PTFE		
16	Bearing	B148/SF-1/17-7PH				
17	Tailpiece	A216 WCB	A217 LCB	A351 CF8	A351 CF8M	A351 CF3M
18	Seal seat	Flexible graphite		PTFE		
20	Pin	A276 316	A276 316	A276 316	A276 316	A276 316
21	Butterfly board	A351 CF8M	A351 CF8M	A351 CF8M	A351 CF8M	A351 CF8M
22	Shaft	A276 316	A276 316	A276 316	A276 316	A276 316

BUTTERFLY VALVE

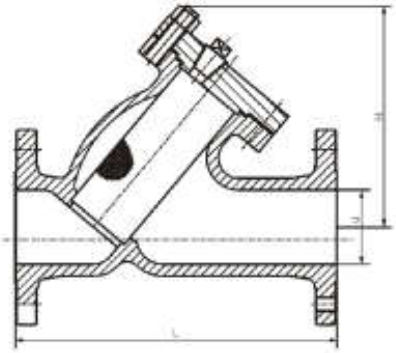
Triple eccentric butterfly valve

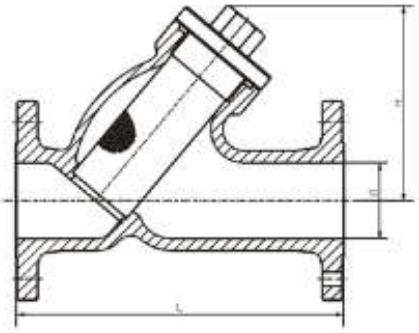


		150Lb																
NPS		2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	32"	36"	42"
L-RF		43	64	64	70	76	89	114	114	127	140	152	152	178	229	241	241	305
L-BW		107	114	127	140	140	152	165	178	190	216	222	229	267	292	318	330	410
L-WF		43	49	56	64	70	71	76	86	92	102	114	127	154	165	190	203	251
D_1		120.5	152.5	190.5	216	241.5	298.5	362	432	476	540	578	635	749.5	914	978	1085	1257
D_2		92	127	157	186	216	270	324	381	413	470	533	584	692	857	914	1022	1194
H		345	380	415	455	545	615	695	830	900	980	1030	1110	1305	1525	1585	1765	1871
H_1		280	315	350	390	455	522	605	730	800	870	920	1000	1155	1375	1435	1585	1610
H_2		110	125	145	165	175	210	250	285	320	355	380	415	475	580	630	680	680
WT Kg	RF	20	29	35	40	81	94	156	183	239	302	346	434	638	788	880	1042	1670
	BW	21	27	34	41	43	81	102	132	164	193	238	302	457	910	1093	1410	1870
	WF	9	11	13	16	26	34	51	72	106	133	176	290	394	476	618	762	963
		300Lb																
L-RF		43	64	64	70	76	89	114	114	127	140	152	152	178	229	241	241	305
L-BW		43	49	56	64	70	71	76	86	92	102	114	127	154	165	190	203	251
L-WF		106	180	190	200	210	230	250	270	290	310	330	350	390	430	470	510	550
D_1		127	168	200	235	270	330	387	451	514	571	628	686	813	997	1054	1168	1206.5
D_2		92	127	157	186	216	270	324	381	413	470	533	584	692	867	914.5	1022	1136
H		345	380	415	455	524	615	695	830	900	980	1030	1110	1350	1525	1585	1765	1871
H_1		280	315	350	390	455	525	605	730	800	870	920	1000	1156	1375	1435	1585	1610
H_2		110	125	145	165	175	210	250	285	320	355	380	415	475	580	630	680	680
WT Kg	RF	27	31	38	43	45	85	110	142	172	201	245	315	467	922	1105	1430	1890
	BW	24	27	38	50	54	100	13	260	280	320	500	550	900	1234	1468	1782	2300
	WF	11	12	15	18	28	37	56	71	116	146	193	209	433	523	838	927	1000

STRAINER

Class150~Class300 & JIS 10K~JIS 20K Cast steel Y strainer





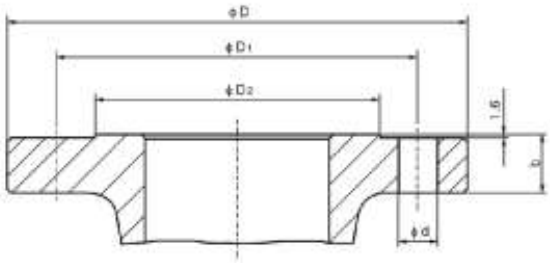
Standards

End flange dimension: ASME B16.5 or JIS B 2238.
Pressure–temperature ratings: ASME B16.34.

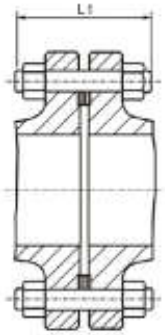
Size		Class150 , JIS 10K				Class300 , JIS 20K			
		Dimensions (mm)			Weight(Kg)	Dimensions (mm)			Weight(Kg)
NPS	DN	L	H	H1		L	H	H1	
3/4	15	108	67	92	2	152	70	95	3
1/2	20	117	73	105	2	178	80	110	4
1	25	127	87	117	3	203	92	120	5
1 1/4	32	140	100	138	4	216	105	142	7
1 1/2	40	165	123	150	5	229	128	155	9
2	50	203	147	179	13	267	152	184	16
2 1/2	65	216	180	232	15	292	185	236	20
3	80	241	198	263	18	318	204	266	24
4	100	292	234	337	22	356	240	340	30
5	125	390	274	383	42	460	280	386	50
6	150	440	314	452	50	550	320	456	70
8	200	540	400	555	91	600	410	560	115
10	250	760	512	725	205	760	530	730	270
12	300	870	581	870	297	870	600	875	380
14	350	950	633	933	394	950	650	938	520

STEEL PIPE FLANGES

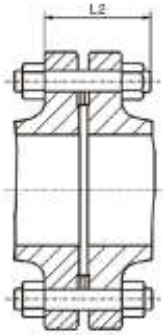
Steel Pipe Flanges ASME B 16.5 RF



Class150 & Class300 RF Flanges



Length of Stud Bolt

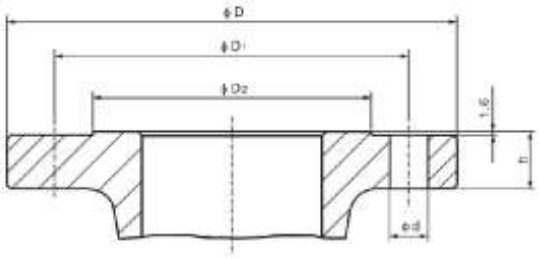


Length of Machine Bolt

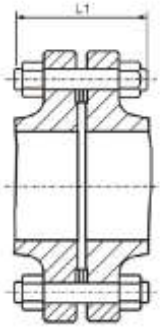
Class	Nominal Size		D		D1		D2		b		d		Bolt		L1		L2	
	NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	Number	Diam	in	mm	in	mm
150	1/2	15	3.50	89	2.38	60.5	1.38	35	0.38	10	0.62	16	4	1/2	2.25	57	2.00	51
	3/4	20	3.88	99	2.75	69.9	1.69	43	0.41	10.5	0.62	16	4	1/2	2.50	64	2.00	51
	1	25	4.25	108	3.12	79.2	2.00	51	0.44	11.5	0.62	16	4	1/2	2.50	64	2.25	57
	1 1/4	32	4.62	117	3.50	88.9	2.50	64	0.50	13	0.62	16	4	1/2	2.75	70	2.25	57
	1 1/2	40	5.00	127	3.88	98.6	2.88	73	0.56	14.5	0.62	16	4	1/2	2.75	70	2.50	64
	2	50	6.00	152	4.75	120.7	3.62	92	0.62	16	0.75	19	4	5/8	3.25	83	2.75	70
	2 1/2	65	7.00	178	5.50	139.7	4.12	105	0.69	18	0.75	19	4	5/8	3.50	89	3.00	76
	3	80	7.50	191	6.00	152.4	5.00	127	0.75	19.5	0.75	19	4	5/8	3.50	89	3.00	76
	4	100	9.00	229	7.50	190.5	6.19	157	0.94	24	0.75	19	8	5/8	3.50	89	3.00	76
	5	125	10.00	254	8.50	215.9	7.31	186	0.94	24	0.88	22	8	3/4	3.75	95	3.25	83
	6	150	11.00	279	9.50	241.3	8.50	216	1.00	25.5	0.88	22	8	3/4	4.00	102	3.25	83
	8	200	13.50	343	11.75	298.5	10.62	270	1.12	28.5	0.88	22	8	3/4	4.25	108	3.50	89
	10	250	16.00	406	14.25	362.0	12.75	324	1.19	30.5	1.00	25	12	7/8	4.50	114	4.00	102
	12	300	19.00	483	17.00	431.8	15.00	381	1.25	32	1.00	25	12	7/8	4.75	121	4.00	102
	14	350	21.00	533	18.75	476.3	16.25	413	1.38	35.5	1.12	28	12	1	5.25	133	4.50	114
	16	400	23.50	597	21.25	539.8	18.50	470	1.44	37	1.12	28	16	1	5.25	133	4.50	114
	18	450	25.00	635	22.75	577.9	21.00	533	1.56	40	1.25	32	16	1 1/8	5.75	146	5.00	127
	20	500	27.50	699	25.00	635.0	23.00	584	1.69	43	1.25	32	20	1 1/8	6.25	159	5.50	140
	24	600	32.00	813	29.50	749.3	27.25	692	1.88	48	1.38	35	20	1 1/4	6.75	171	6.00	152
300	1/2	15	3.75	95	2.62	67.0	1.38	35	–	–	0.62	16	4	1/2	2.50	64	2.25	57
	3/4	20	4.62	117	3.25	83.0	1.69	43	–	–	0.75	19	4	5/8	3.00	76	2.50	64
	1	25	4.88	124	3.50	89.0	2.00	51	0.69	18	0.75	19	4	5/8	3.00	76	2.50	64
	1 1/4	32	5.25	133	3.88	99.0	2.50	64	0.75	19.5	0.75	19	4	5/8	3.25	83	2.75	70
	1 1/2	40	6.12	155	4.50	114.0	2.88	73	0.81	21	0.88	22	4	3/4	3.50	89	3.00	76
	2	50	6.50	165	5.00	127.0	3.62	92	0.88	22.5	0.75	19	8	5/8	3.50	89	3.00	76
	2 1/2	65	7.50	191	5.88	149.4	4.12	105	1.00	25.5	0.88	22	8	5/8	4.00	102	3.25	83
	3	80	8.25	210	6.62	168.1	5.00	127	1.12	28.5	0.88	22	8	5/8	4.25	108	3.50	89
	4	100	10.00	254	7.88	200.2	6.19	157	1.25	32	0.88	22	8	5/8	4.50	114	3.75	95
	5	125	11.00	279	9.25	235.0	7.31	186	1.38	35.5	0.88	22	8	5/8	4.75	121	4.25	108
	6	150	12.50	318	10.62	269.7	8.50	216	1.44	37	0.88	22	12	5/8	4.75	121	4.25	108
	8	200	15.00	381	13.00	330.2	10.62	270	1.62	41.5	1.00	25	12	7/8	5.50	140	4.75	121
	10	250	17.50	445	15.25	387.4	12.75	324	1.88	48	1.12	28	16	1	6.25	159	5.50	140
	12	300	20.50	521	17.75	450.9	15.00	381	2.00	51	1.25	32	16	1 1/8	6.75	171	5.75	146
	14	350	23.00	584	20.25	514.4	16.25	413	2.12	54	1.25	32	20	1 1/8	7.00	178	6.25	159
	16	400	25.50	648	22.50	571.5	18.50	470	2.25	57.5	1.38	35	20	1 1/4	7.50	191	6.50	165
	18	450	28.00	711	24.75	628.7	21.00	533	2.38	60.5	1.38	35	24	1 1/4	7.75	197	6.75	171
	20	500	30.50	775	27.00	685.8	23.00	584	2.50	63.5	1.38	35	24	1 1/4	8.00	203	7.25	184
	24	600	36.00	914	32.00	812.8	27.25	692	2.75	70	1.62	41	24	1 1/2	9.00	229	8.00	203

STEEL PIPE FLANGES

Steel Pipe Flanges ASME B 16.5 RF



Class600-Class2500 RF Flanges

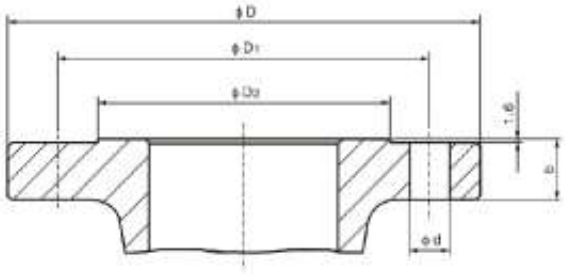


Length of Stud Bolt

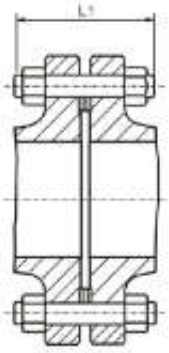
Class	Nominal Size		D		D1		D2		b		d		Bolt		L1	
	NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	Number	Diam	in	mm
600	1/2	15	3.75	95	2.62	66.5	1.38	35	0.56	14.5	0.62	16	4	1/2	3.00	76
	1/2	20	4.62	117	3.25	82.6	1.69	43	0.62	16	0.75	19	4	5/8	3.50	89
	1	25	4.88	124	3.50	88.9	2.00	51	0.69	18	0.75	19	4	5/8	3.50	89
	3/4	32	5.25	133	3.88	98.6	2.50	64	0.81	21	0.75	19	4	5/8	3.75	95
	1 1/4	40	6.12	155	4.50	114.3	2.88	73	0.88	22.5	0.88	22	4	3/4	4.25	108
	2	50	6.50	165	5.00	127.0	3.62	92	1.00	25.5	0.75	19	8	5/8	4.25	108
	1 1/2	65	7.50	191	5.88	149.4	4.12	105	1.12	28.5	0.88	22	8	3/4	4.75	121
	3	80	8.25	210	6.62	168.1	5.00	127	1.25	32	0.88	22	8	3/4	5.00	127
	4	100	10.75	273	8.50	215.9	6.19	157	1.50	38.5	1.00	25	8	7/8	5.75	146
	5	125	13.00	330	10.50	266.7	7.31	186	1.75	44.5	1.12	28	8	1	6.50	165
	6	150	14.00	356	11.50	292.1	8.50	216	1.88	48	1.12	28	12	1	6.75	171
	8	200	16.50	419	13.75	349.3	10.62	270	2.19	56	1.25	32	12	1 1/8	7.50	191
	10	250	20.00	508	17.00	431.8	12.75	324	2.50	63.5	1.38	35	16	1 1/4	8.50	216
	12	300	22.00	559	19.25	489.0	15.00	381	2.62	67	1.38	35	20	1 1/4	8.75	222
	14	350	23.75	603	20.75	527.1	16.25	413	2.75	70	1.50	38	20	1 1/4	9.25	235
	16	400	27.00	686	23.75	603.3	18.50	470	3.00	76.5	1.62	41	20	1 1/2	10.00	254
	18	450	29.25	743	25.75	654.1	21.00	533	3.25	83	1.75	44	20	1 5/8	10.75	273
	20	500	32.00	813	28.50	723.9	23.00	584	3.50	89	1.75	44	24	1 5/8	11.25	286
	24	600	37.00	940	33.00	838.2	27.25	692	4.00	102	2.00	51	24	1 7/8	13.00	330
900	1/2	15	4.75	121	3.25	82.6	1.38	35	0.88	22.5	0.88	22	4	3/4	4.25	108
	3/4	20	5.12	130	3.50	88.9	1.69	43	1.00	25.5	0.88	22	4	3/4	4.50	114
	1	25	5.88	149	4.00	101.6	2.00	51	1.12	28.5	1.00	25	4	7/8	5.00	127
	1 1/4	32	6.25	159	4.38	111.3	2.50	64	1.12	28.5	1.00	25	4	7/8	5.00	127
	1 1/2	40	7.00	178	4.88	124.0	2.88	73	1.25	32	1.12	28	4	1	5.50	140
	2	50	8.50	216	6.50	165.1	3.62	92	1.50	38.5	1.00	25	8	7/8	5.75	146
	2 1/2	65	9.62	244	7.50	190.5	4.12	105	1.62	41.5	1.12	28	8	1	6.25	159
	3	80	9.50	241	7.50	190.5	5.00	127	1.50	38.5	1.00	25	8	7/8	5.75	146
	4	100	11.50	292	9.25	235.0	6.19	157	1.75	44.5	1.25	32	8	1 1/8	6.75	171
	5	125	13.75	349	11.00	279.4	7.31	186	2.00	51	1.38	35	8	1 1/4	7.50	191
	6	150	15.00	381	12.50	317.5	8.50	216	2.19	56	1.25	32	12	1 1/8	7.50	191
	8	200	18.50	470	15.50	393.7	10.62	270	2.50	63.5	1.50	38	12	1 3/8	8.75	222
	10	250	21.50	546	18.50	469.9	12.75	324	2.75	70	1.50	38	16	1 3/8	9.25	235
	12	300	24.00	610	21.00	533.4	15.00	381	3.12	79.5	1.50	38	20	1 3/8	10.00	254
	14	350	25.25	641	22.00	558.8	16.25	413	3.38	86	1.62	41	20	1 1/2	10.75	273
	16	400	27.75	705	24.25	616.0	18.50	470	3.50	89	1.75	44	20	1 7/8	11.25	286
	18	450	31.00	787	27.00	685.8	21.00	533	4.00	102	2.00	51	20	1 7/8	12.75	324
	20	500	33.75	857	29.50	749.3	23.00	584	4.25	108	2.12	54	20	2	13.75	349
	24	600	41.00	1041	35.50	901.7	27.25	692	5.50	140	2.62	67	20	2 1/2	17.25	438

STEEL PIPE FLANGES

Steel Pipe Flanges ASME B 16.5 RF



Class600-Class2500 RF Flanges

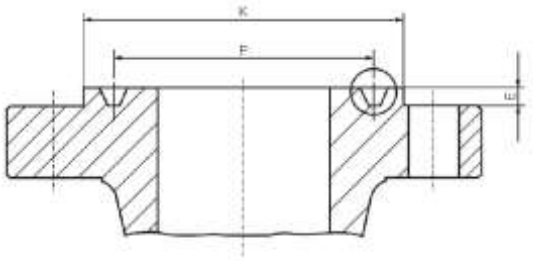


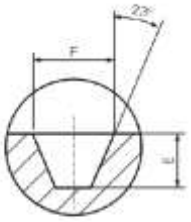
Length of Stud Bolt

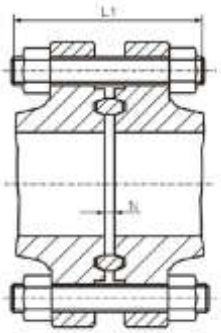
Class	Nominal Size		D		D1		D2		b		d		Bolt		L1	
	NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	Number	Diam	in	mm
1500	1/2	15	4.75	121	3.25	82.6	1.38	35	0.88	22.5	0.88	22	4	3/4	4.25	108
	3/4	20	5.12	130	3.50	88.9	1.69	43	1.00	25.5	0.88	22	4	3/4	4.50	114
	1	25	5.88	149	4.00	101.6	2.00	51	1.12	28.5	1.00	25	4	7/8	5.00	127
	1 1/4	32	6.25	159	4.38	111.3	2.50	64	1.12	28.5	1.00	25	4	7/8	5.00	127
	1 1/2	40	7.00	178	4.88	124.0	2.88	73	1.25	32	1.12	28	4	1	5.50	140
	2	50	8.50	216	6.50	165.1	3.62	92	1.50	38.5	1.00	25	8	7/8	5.75	146
	2 1/2	65	9.62	244	7.50	190.5	4.12	105	1.62	41.5	1.12	28	8	1	6.25	159
	3	80	10.50	267	8.00	203.2	5.00	127	1.88	48	1.25	32	8	1 1/8	7.00	178
	4	100	12.25	311	9.50	241.3	6.19	157	2.12	54	1.38	35	8	1 1/4	7.75	197
	5	125	14.75	375	11.50	292.1	7.31	186	2.88	73.5	1.62	41	8	1 1/2	9.75	248
	6	150	15.50	394	12.50	317.5	8.50	216	3.25	83	1.50	38	12	1 3/8	10.25	260
	8	200	19.00	483	15.50	393.7	10.62	270	3.62	92	1.75	44	12	1 5/8	11.50	292
	10	250	23.00	584	19.00	482.6	12.75	324	4.25	108	2.00	51	12	1 7/8	13.25	337
	12	300	26.50	673	22.50	571.5	15.00	381	4.88	124	2.12	54	16	2	14.75	375
	14	350	29.50	749	25.00	635.0	16.25	413	5.25	133.5	2.38	60	16	2 1/2	16.00	406
	16	400	32.50	826	27.75	704.9	18.50	470	5.75	146.5	2.62	67	16	2 1/2	17.50	445
	18	450	36.00	914	30.50	774.7	21.00	533	6.38	162	2.88	73	16	2 3/4	19.50	495
	20	500	38.75	984	32.75	831.9	23.00	584	7.00	178	3.12	79	16	3	21.25	540
	24	600	46.00	1168	39.00	990.6	27.25	692	8.00	203.5	3.62	92	16	3 1/2	24.25	616
2500	1/2	15	5.25	133	3.50	88.9	1.38	35	1.19	30.5	0.88	22	4	3/4	4.75	121
	3/4	20	5.50	140	3.75	95.3	1.69	43	1.25	32	0.88	22	4	3/4	5.00	127
	1	25	6.25	159	4.25	108.0	2.00	51	1.38	35.5	1.00	25	4	7/8	5.50	140
	1 1/4	32	7.25	184	5.12	130.0	2.50	64	1.50	38.5	1.12	28	4	1	6.00	152
	1 1/2	40	8.00	203	5.75	146.1	2.88	73	1.75	44.5	1.25	32	4	1 1/8	6.75	171
	2	50	9.25	235	6.75	171.5	3.62	92	2.00	51	1.12	28	8	1	7.00	178
	2 1/2	65	10.50	267	7.75	196.9	4.12	105	2.25	57.5	1.25	32	8	1 1/8	7.75	197
	3	80	12.00	305	9.00	228.6	5.00	127	2.62	67	1.38	35	8	1 1/4	8.75	222
	4	100	14.00	356	10.75	273.1	6.19	157	3.00	76.5	1.62	41	8	1 1/2	10.00	254
	5	125	16.50	419	12.75	323.9	7.31	186	3.62	92	1.88	48	8	1 3/4	11.75	298
	6	150	19.00	483	14.50	368.3	8.50	216	4.25	108	2.12	54	8	2	13.50	343
	8	200	21.75	552	17.25	438.2	10.62	270	5.00	127	2.12	54	12	2	15.00	381
	10	250	26.50	673	21.25	539.8	12.75	324	6.50	165.5	2.62	67	12	2 1/2	19.25	489
	12	300	30.00	762	24.38	619.3	15.00	381	7.25	184.5	2.88	73	12	2 3/4	21.25	540

STEEL PIPE FLANGES

Steel Pipe Flanges ASME B 16.5 RTJ







Class	Nominal Size		Ring Number	P		E		F		K		N		L1	
	NPS	DN		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
150	1	25	R15	1.875	47.63	0.25	6.35	0.344	8.74	2.50	64	0.16	4	3.00	76
	1¼	32	R17	2.250	57.15	0.25	6.35	0.344	8.74	2.88	73	0.16	4	3.25	83
	1½	40	R19	2.562	65.07	0.25	6.35	0.344	8.74	3.25	83	0.16	4	3.25	83
	2	50	R22	3.250	82.55	0.25	6.35	0.344	8.74	4.00	102	0.16	4	3.75	95
	2½	65	R25	4.000	101.60	0.25	6.35	0.344	8.74	4.75	121	0.16	4	4.00	102
	3	80	R29	4.500	114.30	0.25	6.35	0.344	8.74	5.25	133	0.16	4	4.00	102
	4	100	R36	5.875	149.23	0.25	6.35	0.344	8.74	6.75	171	0.16	4	4.00	102
	5	125	R40	6.750	171.45	0.25	6.35	0.344	8.74	7.62	194	0.16	4	4.25	108
	6	150	R43	7.625	193.68	0.25	6.35	0.344	8.74	8.62	219	0.16	4	4.50	114
	8	200	R48	9.750	247.65	0.25	6.35	0.344	8.74	10.75	273	0.16	4	4.75	121
	10	250	R52	12.000	304.80	0.25	6.35	0.344	8.74	13.00	330	0.16	4	5.00	127
	12	300	R56	15.000	381.00	0.25	6.35	0.344	8.74	16.00	406	0.16	4	5.25	133
	14	350	R59	15.625	396.88	0.25	6.35	0.344	8.74	16.75	425	0.12	3	5.75	146
	16	400	R64	17.875	454.03	0.25	6.35	0.344	8.74	19.00	483	0.12	3	5.75	146
	18	450	R68	20.375	517.53	0.25	6.35	0.344	8.74	21.50	546	0.12	3	6.25	159
	20	500	R72	22.000	558.80	0.25	6.35	0.344	8.74	23.50	597	0.12	3	6.75	171
	24	600	R76	26.500	673.10	0.25	6.35	0.344	8.74	28.00	711	0.12	3	7.25	184
300	1	25	R16	2.000	50.80	0.25	6.35	0.344	8.74	2.75	70	0.16	4	3.50	89
	1¼	32	R18	2.375	60.33	0.25	6.35	0.344	8.74	3.12	79	0.16	4	3.75	95
	1½	40	R20	2.688	68.28	0.25	6.35	0.344	8.74	3.56	90	0.16	4	4.00	102
	2	50	R23	3.250	82.55	0.312	7.92	0.469	11.91	4.25	108	0.22	6	4.00	102
	2½	65	R26	4.000	101.60	0.312	7.92	0.469	11.91	5.00	127	0.22	6	4.50	114
	3	80	R31	4.875	123.83	0.312	7.92	0.469	11.91	5.75	146	0.22	6	4.75	121
	4	100	R37	5.875	149.23	0.312	7.92	0.469	11.91	6.88	175	0.22	6	5.00	127
	5	125	R41	7.125	180.98	0.312	7.92	0.469	11.91	8.25	210	0.22	6	5.25	133
	6	150	R45	8.312	211.12	0.312	7.92	0.469	11.91	9.50	241	0.22	6	5.50	140
	8	200	R49	10.625	269.88	0.312	7.92	0.469	11.91	11.88	302	0.22	6	6.00	152
	10	250	R53	12.750	323.85	0.312	7.92	0.469	11.91	14.00	356	0.22	6	6.75	171
	12	300	R57	15.000	381.00	0.312	7.92	0.469	11.91	16.25	413	0.22	6	7.25	184
	14	350	R61	16.500	419.10	0.312	7.92	0.469	11.91	18.00	457	0.22	6	7.50	191
	16	400	R65	18.500	469.90	0.312	7.92	0.469	11.91	20.00	508	0.22	6	8.00	203
	18	450	R69	21.000	533.40	0.312	7.92	0.469	11.91	22.62	575	0.22	6	8.25	210
	20	500	R73	23.000	584.20	0.375	9.53	0.531	13.49	25.00	635	0.22	6	8.75	222
	24	600	R77	27.250	692.15	0.438	11.13	0.656	16.66	29.50	749	0.25	6	10.00	254